ITEMS OF INTEREST.

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Shots from the Profession.

ANTISEPSIS.

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[Part of paper read before the Cincinnati Dental Society, May 13, 1884.]

The proper understanding of the word antiseptic, involves a knowledge of all that is implied in *sepsis*. The term sepsis means putrefaction. Putrefaction is the splitting up of an organic body into its elements, not elements in the sense of *simple* substances, but bodies which, by their less complex composition, are more tangible.

The term putrefaction is always spoken of in connection with organic bodies, but for sake of illustration the term may also be applied to inorganic bodies. If we bring together two inorganic substances having affinities for each other, they will, speaking in an analogous sense, be said to have undergone putrefaction. If an organic body be exposed to a ferment, it breaks down, changes its chemical components, and is said to have undergone putrefaction. In both cases the bodies have simply broken down, forming new bodies, in the latter, a ferment in connection with chemical affinity, in the former, chemical affinity alone acting.

It was first held that *sepsis* and putrefaction are identical. All that was required to produce a septic condition of the blood was the absorption of some decomposed matter. It was then noticed that in some cases where the products of decomposition were absorbed in large quantities, less effects were produced than in other cases where very small portions had been absorbed. Where the smaller portions had been absorbed the effects were alarmingly gross, while the effects of a large quantity were amazingly small. Koch was the one who discovered the cause of this seeming parodox, and he divided the condition of absorbed putrefaction into two distinct divisions, and called them *septic poisoning*, and *septic infection*.

Septic poisoning is merely that condition caused by the absorp-

tion of the chemical products of putrefaction. It is no more an infective process than the poisoning that would result from the application of arsenic, mercury, or any other inorganic substance to a raw surface. Septic infection, on the other hand, as described by Koch, is that condition which results from the inoculation or absorption of an infinitesimal dose, without the formation of secondary local centers of inflammation. The blood is, however, so completely impregnated with the inoculable material that simply scratching an animal with a pin dipped in the blood, even if it be taken from the center of the heart, will start a like process in the animal. The duration and violence of septic poisoning is proportioned to the amount of decomposed matter originally absorbed. It has no power of multiplication in the blood, and, therefore, unlike septic infection, it spends itself, while septic infection, goes on to the destruction of the organisms in which it is contained. It has the power of multiplication.

Koch claims that he has found the peculiar bacteria, the red-like bacteria of putrefaction, being the one always found; but when septic infection is present he finds a round bacteria which is capable of great multiplication, and is of great tenacity of life. The red-like bacteria are very short lived, and are not capable of long endurance and multiplication in the human body. There is no doubt that decomposition favors the formation of these round bacteria by forming a suitable soil for their propagation; but decomposition can exist without them. Whether they can exist without decomposition is still a debatable question. From this can be drawn the conclusion that, if you prevent decomposition, you, at least, take away a great predisposition to septic infection, or the formation of true septic germs. I should here like to draw a plausible inference: Might not abscesses of the alveoli of the maxilliary bones be either septically poisoned or septically infected, or in abscesses of long duration, where the periodical return of the disease is marked, in cases where they are said to be hard to cure and baffle the accustomed remedies? I think it is not so much the health of the patient, for healthy, robust people are just as subject to these periodical returns as others. I do not think that it can be attributed to the non-removal of the results of putrefaction. I do not believe that tortuous canals and confined gas are entirely responsible for the trouble, but I do believe that these abscesses, so called, are truly and strictly local septic infections. Putrefaction has been there, but it has simply formed a soil for the growth of a true distinct, disease germ. From this basis we can account for the incurability of its nature. The impossibility of neutralizing the disease by means of present remedies, the inability to remove all the disease, and the infinitesimal amount of disease that it takes to start the process, all tend to but one conclusion. The continuance of this septic process after

the extraction of the root is sometimes particularly marked, and resolves itself into distinct symptoms.

REFLEX ACTION.

DR. J. J. R. PATRICK, BELLEVILLE, ILL., ILL. DENTAL SOCIETY.

The movements which are caused in the nerves of special sense, by external agents are numerous; in fact, it is external influence only that excites the organs of the special sense to action. It is an ultimate fact that in nature that consciousness is the result of stimulated nervous tissue; we know that we smell with our nose and see with our eyes; we cannot smell with our ears or see with our tongues; and yet, the gustatory and auditory nerves are in substance like the optic and the olfactory. This difference in function is evidently in the arrangement of the nerve cells and the disposition of the channels through which external agents have to travel to reach them. We constantly feel in spite of ourselves, for it is impossible for us to avoid having sensation when any object excites a nerve; the sensation is within us, but is dependent on external influences; we receive it, but how? It is evident that there is no connection between the words which I utter and the impression which my words have upon your brain; and how diversely the same words will impress different individuals! Witness the effect produced on the mind and body of an individual surrounded by a gay and happy company, who receives a telegram from the hand of a messenger, the few lines of which convey to him the intelligence that a great calamity has befallen his nearest and dearest friend. The shock throws him into convulsions, his friends endeavor to pacify him, he is completely prostrated, a fever sets in, he is delerious for weeks, but finally recovers; his friends sympathized, but were not afflicted in the same manner, they saw the same characters on the scrap of paper that were seen by their unfortunate friend and the intelligence was conveyed to their minds in precisely the same way. Yet how different the result on the nervous system.

Again, two individuals are engaged in conversation, presently one utters words that jar upon the auditory nerves of the one spoken to, the vibrations pass from the nerves of special sense and seize upon the motor system of nerves, these contract the fibers of the levator muscles and suddenly pass the impulse to the extensors, which extending the arm with great force knocks the speaker down; and what for? simply for agitating a little air; the waves of which, passing to the auditory nerves of the one spoken to, were reflected back to the speaker in the form of a repulsive blow. Why should not this phenomenon be classed as an instance of reflex pain? The property of a nerve cord to receive an impression and conduct it inwards in com-

mon to all nerves; but there are certain nerves that not only have the property of receiving and conducting an impulse inward, but also have the power to return the same impulse outward; these are ganglionic nerves and are distinguished from all others by nervous knots, composed of gray matter, which knots distinguish them physiolgically as central organs, from simple nerves, and endow them with the power of reflex action, whether of pain or pleasure. The reflex power is possessed by the gray matter only, and not by white substance of the cord. The afferent impulse being converted into an efferent impulse, producing what is called reflex action, is beautifully illustrated in the expansion and contraction of the iris in accommodating itself to the luminous vibrations which produce the sensation of light, when the light passes through the central opening or pupil, and thence through the lens to the retina, where it is received by the nerves of the retina on its concave surface; now, if the light be too strong, the small ganglia connected with the nerves which control the movements of the iris, instantly transmit an efferent impulse, which contracts the pupil and shuts off the light; if, however, the luminous vibrations are not sufficient to produce a strong sensation of light (as in a dark room) the iris expands and the pupil is enlarged by the same process of reflex action. The points of a star-fish are supplied with nerves and ganglia to produce reflex action; touch one of the extended points, and the impulse is carried toward the center to the ganglia controlling the point touched; at once ganglia returns the impulse to the muscles which, immediately contract, and the point curls up. A similar phenomenon is produced when a frond of the sensitive plant is touched; the frond, however, having no muscles to contract, simply droops. Are those ganglia that we find in plant and animal, that bring about such positive action, endowed with intelligence? or are all these phenomena merely a manifestation of chemical and mechanical energy? When we pass beyond the boundary of physics into the region of metaphysics, we become as men born blind discussing the nature of light.—*Archives of Dentistry.*

EDITOR ITEMS:

Will some one explain the cause and remedy in the following case:

A patient about fifty years of age, in general good health, has a sound left inferior molar loose from absorption of the alveolus. There is no inflammation or soreness, nor any tartar. The inside root is partially exposed. The right lateral inferior incisor was lost in the same way, some time since. The remainder of the teeth are tight and in good condition.

E.

IODOFORM IN DENTAL PRACTICE.

C. F. W. BÖDECKER, D. D. S., M. D. S., NEW YORK.

The above is the caption of a neat pamphlet giving quite an exhaustive treatise on this subject. The following is a salient extract:—

In dental practice iodoform is as yet not in general use, although those practitioners who have employed it praise it very highly. As a remedy in chronic pulpitis, a capping for exposed pulps, a dressing in oral surgery, and in some instances a preventive against an acute alveolar abscess, we possess no drug which, in its action, is as certain as iodoform. Every dental practitioner knows how annoying it is to see patients with an acute alveolar abscess, especially when this occurs in teeth, the pulps of which have been dead for some time, and which, previous to the opening of the pulp chamber, had given no trouble. I know of no remedy which will prevent this as surely as the saturated solution of iodoform in ether, when used in the proper way. In some instances we can open the chamber of a pulpless tooth, which usually contains a great deal of septic matter, clean it out, fill it at once, and no trouble whatever will arise. In these cases the end of the root is encysted, and any kind of filling material, or even no filling at all, will answer the purpose. In other instances, however, when the pulp canal in the end of the root is open, and no encystment present around the apex, an acute alveolar abscess in the majority of instances follows the opening of the pulp chamber, even if no attempt has been made to enter the pulp canal with an instrument. The formation of an alveolar abscess in these instances, I believe is due to the entrance of air into the pulp canal. I have for nearly three years been very successful in such cases, and a number of my professional friends who have pursued the same line of treatment have met with similar results. My proceeding is as follows:

I drill a hole into the tooth or filling toward the pulp chamber, until it very nearly reaches it. I fill this drill hole with a saturate solution of iodoform in ether (about ʒi of iodoform to ℥i of sulphuric ether), and very quickly, before the ether is evaporated, pierce the remaining septum of the pulp chamber. I then fill the pulp chamber loosely with a piece of cotton saturated with the iodoform solution, and temporarily seal it. This plug I allow to remain from three to five days before I attempt to clean out either the pulp chamber or the root canal. After this time has elapsed, I remove the temporary plug, together with the cotton, make the pulp canal accessible, and as straight as possible, without interfering with the strength of the tooth. I then clean out the pulpy chamber, at the same time cutting away all superflous dentine, and thoroughly rinse it out with water. I apply the rubber dam, dry the cavity, and if the canals are accessible I at

once proceed to clean and fill them, in the manner to be mentioned hereafter. If, however, the tooth presents any inaccessible narrow or curved canals, such as we meet with in the buccal roots of upper molars and first bicuspids. the mesial roots of lower molars and most of the roots of wisdom teeth, I introduce one or two drops of an aqueous solution of chloride of zinc (about forty grains to the ounce of water), and temporarily seal the cavity with a mixture of gutta percha and wax for about twenty-four hours. When I see the patient again, before I remove the temporary plug, in order to exclude the entrance of the saliva into the canals, I apply the rubber dam. Then I remove the temporary filling, apply a few drops of absolute alcohol, dry the cavity out again, and moisten it with the solution of iodoform in ether. Now I begin to clean the pulp canals, either with Donaldson's nerve extractors, a smooth nerve broach, the temper of which has been previously drawn, a Gate's drill, or any other suitable instrument. When the canals are as clean as I can get them with instruments, I again wash them out with absolute alcohol and dry them by means of a non-barbed pivot broach, around which I wind a few fibers of cotton, which I repeat until the cotton comes out of the canal perfectly dry and clean. I then again apply a drop or two of the saturated solution of iodoform in ether, and quickly pump it into the canal. The next step is the introduction of the filling into the root canals.—*Trans. Am. Dent. Ass., 1879.*

NOMENCLATURE.

[Extract from a Lecture by Prof. L. C. Ingersoll, Dean of the Dental Department of the State University of Iowa.]

The term dentistry has not, in its true significance, the remotest allusion to the chief element of modern dentistry, viz: its scientific character. The term signifies simply an article of manufacture which is the product of the dentist, as millinery means the product of the milliner, and jewelry the product of the jeweler, and hosiery the product of the knitter and the stocking weaver, and carpentry the product of the carpenter. In earlier days when the dentist engaged himself in almost nothing else than the manufacture of artificial teeth, the product of the dentist was very fittingly called dentistry. But considering its modern scientific development, it should be known by a new name.

It has been customary in modern days, to terminate the names of such branches of knowledge as has been developed into sciences by the syllables ol-o-gy, taken from the Greek word *logos*, which means a disertation or discourse, such as is common with instructors. Hence we have the names *theology*, geology, pathology, dermatology, and many more names of sciences with like termination.

This terminology has become so general that we may say that it is the chosen nomenclature of science. Hence, the science relating to the teeth ought to be found in harmony with the nomenclature of science generally, and should be named *dentology*.

Surgery has met with a strange metamorphosis regarding its name. In this primitive state it was but a manual art applied to the relief of external forms of disease, and was called *chirurgery*, a name derived from two greek words, *cheir*, the hand, and *ergeiu*, to work; and it implied simply hand word for the relief of the unfortunate. That work consisted in supplying false limbs, false hair, crutches, bands and splints for broken limbs.

Surgery like dentistry, was at first performed by ignorant barbers, and other illiterate shop men, who, not knowing the significance of the words they used, fell into the habit of clipping and half uttering them. They thus contracted the word chirurgery into *surgery*. So it appears that the name surgery is a mere unmeaning vulgarism.

Inasmuch as surgery has advanced from a mere handicraft to a science, it should have dropped its present name, and have adopted one more significant of its true character as belonging to the family of the sciences, among which, in modern times, it has gained a conspicuous place.

As now practiced, surgery covers the whole range of medical science, as well as the manual operations which have made it a distinctive science. With some sense of propriety, therefore, it might be called *medio-chirology*, which would signify a practice of the healing art by the use of both medicines and manual operations.

The latin word *dens*, meaning *tooth*, has been the most fruitful root from which the technical words of our science have sprung; from it we have the words dentist, dentistry, dentology, dentine, dentition, dentigerous, denture, dentifrice, and many others.

There is a disposition, on the part of some, to burden the science with words of the same meaning derived from the Greek. Thus from the greek word *odos*, or more correctly, *hodos*, using the english *h* for the aspirate sound of the greek—a ward which signifies the same as *dens*, some use the word *odontal* for dental, *odontology* for dentology, odontal membrane for dental membrane. Though this departure from the harmony and simplicity of scientific terms springs from some high source, it is, I think, to be deprecated. While the romantic desire may be indulged in regarding the naming of a society odontological, our text books should not be cumbered with a multiplicity of terms without additional meanings.

For alveolar abscess, Dr. J. Morgan Howe recommends a solution of iodoform in equal parts of ether and alcohol.

SPONTANEOUS GENERATION.

[Editorial in Druggists' Circular.]

Some months ago we published the results of experiments that had been made by Professor Tyndall, of the Royal Institution (London), who seemed to have conclusively proved that those philosophers who had adopted the theory that the lowest organisms in nature were self-producing had been deceived in their investigations. He demonstrated that organic life can only spring from pre-existing living beings. His conclusions were so stoutly denied by his adversaries, and, as it was contended, shown to be erroneous, that he undertook a new set of similar experiments. The following is a summary of the results, delivered in a lecture on the 8th of June, at the Royal Institution. He said :

It is a well-known fact that infusions of vegetable or animal substances, which, when made, are transparent, become in the course of a few hours, if kept at a proper temperature, turbid, and their sweet smell becomes putrid. This is owing to swarms of minute organisms, which, from their appearing in infusions, are called infusoria. The lowest class of these are called bacteria.

There are two theories as to their origin. One, that they are developed from eggs or germs, like the higher forms of animal and vegetable life ; the other, that they arise spontaneously.

The chief advocate of the latter theory is M. Pouchet, of Rouen. His writings show how he arrived at his conclusions. He convinced himself by "meditation" that spontaneous generation was one of Natures modes of action, and then set to work to find evidence in support of his theory. His works are partly scientific, partly theological, and partly satirical. He twits the "ovarists" with the difficulties of their theories. If there is a vast number of germs floating about in the air, as alleged by them, why cannot we see them? From their accounts they should form a thick, dark cloud, obscuring the sky. These theories were inconsistent with the idea of a creative wisdom.

However, Prof. Tyndall said it was an established fact that the blue of the sky, as seen from the highest elevations and above possibility of contamination with the earth, was caused by vast numbers of foreign bodies floating in the atmosphere, so small as to be undistinguishable by a microscope magnifying by 1500 diameters. This had been the highest power available until Dallinger (to whom Professor Tyndall referred in terms of eulogy as a microscopist worthy of a far wider reputation than he had attained), had produced a power magnifying 15,000 diameters. This, however, failed to distinguish these minute germs. The only means of discovering their presence in the atmosphere was the electric light.

During his investigations or "battle with the germs," which oc-

cupied him for six months in 1875-6, he had found it to be a rule without exception that an infusion of turnip, cucumber, beef or mutton, which had been boiled for a period of five minutes, would not putrefy in an atmosphere in which all germs had been allowed to subside. But during the continuance of these investigations, in the autumn of 1876, he found that infusions apparently the same as those prepared in the previous year were not sterilized by boiling for fifteen minutes. There was no opposition. to his mind, between these results; the only question was: Whence did the difference arise? Either these infusions had, in October, 1876, a power of spontaneous generation which they had not in 1875, or there was a more obstinate contagium present in these which the former had escaped.

Acting on the assumption that the latter was the correct interpretation, he transferred his experiments from the laboratory at the Royal Institution to the Jodrell laboratory at Kew, in hopes of obtaining a purer atmosphere. The result was that five minutes' boiling at Kew was sufficient to sterilize infusions which had withstood boiling for 200 minutes at the Royal Institution. Either the infusions had lost a generative power at Kew, which they possessed in the laboratory, or there was a special contagium in the air of the latter place. Next he erected on the roof of the Royal Institution a shed in which he put up his chambers. The infusions were carefully prepared in the shed, but the result was failure—the atmosphere in the shed was as bad as that in the laboratory. It occurred to him that the shed might have been infected by his assistants passing to and fro between it and the laboratory, and bringing the contagium with them. He therefore disinfected the shed by washing it with carbolic acid and water and caustic potash. He and his assistants wore proper, uninfected clothes, and the result was that the infusions again became sterile after five minutes' boiling. A rod thirty feet long would connect the shed with the laboratory. Had the infusions a generative power at one end of the rod, which they had not at the other end? Or was the difference caused by a special contagium present in the laboratory and not in the shed?

After exhibiting some specimens of infusions to illustrate the results of his experiments, the professor pointed out the parallel between the spread of infection from the laboratory to the shed and the spread of infectious diseases in hospitals and other places by means of the passage to and fro of attendants.

The professor then exhibited, by means of the electric light, the contagium in a sample of old hay brought from Heathfield, in Sussex, clouds of fine particles being seen to arise from the hay when shaken beneath the ray of light. This contagium was far more infectious than that ordinarily found in common air, and far more obstin-

ate. The particles were extremely fine, and able to pass unaltered through 300 layers of filter paper. This was the contagium which had infected the laboratory, and was so remarkable for its resistance to heat.

If these were its effects on infusions of turnip or beef, what might its effects not be on open wounds in a hospital? This was a matter now being taken up by the followers of the Antiseptic School of Surgery, and was well worthy of the attention of all surgeons.

This difference between the powers of resistance of various species of contagia was of great moment with regard to the artificial preservation of meats and vegetables. He was not aware of any actual instance, but could imagine great financial reverses occurring to those engaged in these trades by infection from a contagium which would withstand the ordinary means of preservation from putrefaction. He knew that brewers were sometimes liable to checks from causes apparently inexplicable, and he thought that much might be traced to the special form of contagium. It would be possible to cause a great disaster by carrying a truss of hay like that which he had just exhibited through a preserving establishment or a brewery.

The professor then referred to some tables exhibited on the black board, giving a summary of the different periods for which he had subjected infusions of old hay, of turnip and cucumber infected with hay dust, and of beef prepared in an infective atmosphere. The result appeared to be that the turnip and cucumber infusions could stand boiling for 180 minutes and yet putrefy. The beef putrefied after boiling for 300 minutes, and the old hay after boiling over 240 minutes. In one instance a sample of the infusion showed life after it had been boiled for 480 minutes—eight hours.

Boiling does not destroy the power of putrefaction possessed by any substance; it destroys, or is intended to destroy, the germs that are in the infusions or substance at the time. The germs that make an infusion putrefy are those in it, and not those in the air above.

This the professor had established by using a special form of bulb, which he was enabled to fill with purified germless air before he introduced the infusion. The infusion, nevertheless, putrefied, showing that it was the germs in it, and not any outside it, which were the cause of its putrefaction. When an infusion has been sterilized it may again be made putrefactive by introduction of fresh germs.

It was a grave error to confuse the germs of infusion with the adult forms. Heat destroyed the adult organisms, but the germs from which they sprang were comparatively indestructible. This was illustrated by the results of Professor Koch's researches on that dangerous and fatal disease, *Milzbrand*. He had found that an animal might with impunity take the adult organisms after they had been

subjected to a very small amount of heat, but that the germs would withstand a lengthened period of boiling without losing their power of development. One minute's boiling will kill the adult, while eight hours is insufficient to kill the germ. It was not even necessary to raise the heat to boiling point, for a heat of 145 degrees Fahr. would kill the adult.

One result of his (Professor Tyndall's) experiments had been the method of disinfection by discontinuous heating. The substance to be disinfective should be subjected for one minute to a temperature of 140 degrees Fahr.; this would kill all adult organisms. After a few hours' intermission, during which the substance is kept at a proper temperature, to enable the indestructible germs to arrive at a sufficiently sensitive stage of existence, the substance should be again subjected to a mild heat. By this method an infusion would be more perfectly sterilized by an amount of heating which would in the whole amount to five minutes only, than by boiling for many continuous hours.

In one instance Professor Tyndall had noticed that an infusion contained in a sealed flask partially putrefied; a thick scum formed on the top, and the lower parts remained clear. From this and other reasons it had been inferred that bacteria resembled higher organisms in their dependence on oxygen for existence, and that in the present case the bacteria had crowded to the top of the liquid infusion to follow the air, and had thus stifled those beneath. He also showed an instance of a small quantity of a putrefying infusion which had quite exhausted all the oxygen in the large sealed flask in which it had been kept for some time.

Infusions from which air had been perfectly exhausted by means of the Sprengel air pump had also remained sterile.

On the assumption that the mode of life of these lowest forms was the same as those of the highest, and knowing that it had been proved by experiment on the higher animals that an excess of oxygen acted as poison (an experiment which the professor had never performed, and was not likely ever to perform, but of which he took occasion to say that he did not see how science was to make progress, and how diseases were to be combatted without such experiments), he tried the experiment of subjecting infusions of highly putrefactive matter, such as cucumber and turnip, to pressure of 200 atmospheres of oxygen, and found that they remained quite sterile. This result was not due to the mechanical pressure, but to the poisonous effects of the oxygen, for infusions subjected to a like pressure with common air had putrefied.

In conclusion, the professor said that he had hardly thought it necessary to summarize what had been there brought before his au-

dience. In fact, the whole discourse was but a summing up of eight months of incessant labor. From the beginning to the end of the inquiry there was not, as had been seen, a shadow of evidence in favor of the doctrine of spontaneous generation; there was, on the contrary, overwhelming evidence against it; but he warned his hearers not to carry away with them the notion sometimes erroneously ascribed to him, that he deemed spontaneous generation impossible, or that he wished to limit the power of matter in relation to life. His views on that subject ought to be well known. But possibility was one thing and proof was another; and when in the present day he sought for experimental evidence of the transformation of the non-living into the living, he was led inexorably to the conclusion that no such evidence existed, and that in the lowest as well as in the highest of organized creatures the method of nature was that life should be the issue of antecedent life.

"PIVOT CROWN."

F. E. HOWARD, M.D.S., BUFFALO, N. Y.

I have devised a new method of setting the "Bonwill Pivot Crown," and others of its class, which to my mind is far superior to the system advised by Dr. Bonwill, viz., the use of amalgam in making the setting, which I have long since abandoned.

After the usual preparation of the root, select platinum or good wire, barbed, of proper size, or a Bonwill pin. Make a mixture of zinc phosphate, fill the root, crowd the pin in position, and impact the cement to pin and root. The pin should be long enough to extend into the opening of the pivot crown on the palatine surface.

After the cement sets, trim down all excess of filling to a flat surface. Take of good gutta percha a piece that will cover the end of the root, and the thickness of card-board; punch a pin-hole in it and adjust it to the root. Make the second mixture of cement and fill the crown. Slightly warm the gutta percha, put it in position, and crowd the crown to its place.

By this method a joint is secured that is impervious to moisture, preventing disintegration of the cement, which is very strong and all that can be desired if kept from the secretions of the mouth.

Now, if you desire it to be still more permanent in its character, cut out the excess of cement at the palatine cavity, and fill with gold or amalgam, bringing the filling in contact with, and partly anchoring it to, the pin that extends into the root. This method gives us a pivot crown beautiful in appearance, and practically as strong as any that we have.

Should any accident necessitate repair, a new crown is easily adjusted.—*Independent Practitioner.*

PROFESSIONAL ATTAINMENTS AND POPULAR NEEDS.

S. B. PALMER, M. D. S., SYRACUSE.

[Read before the New York Society.]

It must be apparent to every dental practitioner that there has been marked advancement in the preservation of teeth within the last fifteen years. Many and varied are the means which have contributed to this end. Higher education, improved appliances, better knowledge of diseases of the mouth and structure of teeth, and the discovery of other materials for fillings, have all helped to bring about this happy result. Broken down teeth, and even roots, once considered detrimental, are now made to support artificial crowns, with both comfort to the patient and credit to the dentist. In addition to present attainments there is promise of a greater boon to suffering humanity, that dentistry may soon meet the demands of popular needs to an extent not yet realized. At no previous date in the history of dentistry could we have looked for the fulfillment of this promise, because there was really no supply for the demand; or, in other words, the supplies were far above the reach of people in moderate circumstances.

To-day it is well known that teeth may be preserved with other fillings than gold; that the back teeth in particular may thus be filled with no great detriment to external appearances; and further, that gold fillings may be inserted by the young graduate who is in need of practice, at less cost than the established practitioner would care to operate for. Unfortunately for the young dentist and the needy patient, there is a professional gulf which hinders the public from receiving benefits which otherwise might be honorably bestowed. If say *honorably*, because the rendering of services below the standard in a given locality is not considered creditable or professional, even though the demand be just and the services rendered a public necessity. Any dentist in good standing who operates for patients that have left other offices on account of high prices loses reputation by the act.

Gentlemen, the problem before us is as difficult of amicable adjustment as the one which troubles England and Ireland at the present time. As the demand for cheaper dentistry increases, and the possibilities to furnish it becomes practicable, we will see more and more violations of the code of ethics by those entitled to honorable standing in the profession. John Stuart Mill said in Parliament: "Where the captain of a ship or the master of a school found it necessary to resort continually to the cat-o'-nine-tails, or the birch, in order to keep his crew, or his class, quiet and at work, nothing more was needed to show that there must be something out of gear in his management." Considering that there is a large class of people below the present reach and benefits of dentistry, also that there are dentists ready and

anxious to bestow such benefits, does it not show that there is something wrong in the sentiment which prevents the consummation of this worthy object? There is an excuse for the present condition of things. The graduate honors the teachings of his instructor; he starts high and aims high; skill and talent will command their reward, and thus there is proper stimulant to good work; and we have not a word to utter against the highest practice of dentistry. As we look at the other extreme it is plain to be seen that cheap dentistry has no professional recognition or sanction; the *fees* demanded, rather than the work performed, become the standard of respectability. So long as the profession maintains, or asserts, the line of respectability upon other merits than the quality of service rendered, so long will there be recorded dishonorable acts and violations of the code. It is sad when an intelligent patient is compelled, from adverse circumstances, to seek the services of a lower priced operator. His very inquiries give him the reputation of a "dental shopper," and if he succeeds in obtaining a sitting in an honorable chair he feels himself in part a charity patient, or is requested not to make the transaction public. If he consults advertisements and finds the dentist suited to his means, it would be strange indeed if he had not already been warned that this man was a "Cheap John."

To illustrate, I will notice a case reported at a meeting of the Syracuse Dental Society, which typifies the relations of the profession to public needs. A young lady with limited means and in poor health was in the city for medical treatment. She was advised to have her teeth put in order. Being ignorant of dentistry and dental customs, she set about the task as she would to purchase an article of merchandise; in short, went "shopping." I will not give the report, but in substance will say that she called upon me, I being the eighth dentist consulted. She did not ask for work to be done, nor prices, but desired a statement of the number of cavities to be filled. She had been told that seven cavities needed filling, and from that to twenty. She was, of course, much confused; and as respecting the honor and integrity of dentists, she had been told that those who would do the work within her means were unworthy of her confidence. It was evident that this representative of popular needs found in dentistry a monopoly as exacting as we find in the manufacture and sale of dental supplies. I was glad to give the advice sought, and advised that ten or twelve cavities be filled as soon as convenient. I told her, too, that the remaining ones could be left six or eight months without injury. I told her that the different representations were made from various standpoints; that there might be twenty cavities filled honestly, but not necessarily at once. Thus I could reconcile the wide margins given as to the number of fillings; but respecting the prejudice im-

planted in her mind touching the courtesy and ability of dentists, there could be nothing flattering said. I could only recommend her to employ some one who would work for the price she could afford to pay.

The report of this case at the meeting above mentioned plainly showed the hindrances ih the way of like applicants for dental services. Each member seemed proud of his adherence to the usual customs of honor; that the case was turned away rather than underbid his brother practitioner. This was professionally noble and manly. But what of the other side, when this seemingly shuts out one-fourth of our population from the practical benefits of our profession, or compels them to employ persons represented as unqualified for practice? We behold the oil of professional honor and dignity, and the water of popular needs. Without some professional concession there can be no unity.

The presentation of this paper serves no personal interests; it demands no Society action. We would suggest that the standing of a dentist should rank according to his fidelity in the discharge of his duties to the public and his conduct towards his professional brethren. It should be honorable to operate as he could afford and according to circumstances. It is dishonorable to solicit patients, or retain them from another practice by low prices. It should be honorable for the beginner to start professionally and openly, as too many are compelled to do secretly. True talent will rise. Because the student is compelled to work his way through college it is no sign he will stay at the bottom of practice. It cannot be expected that the increasing demand for dentistry will be supplied upon the prescribed plans heretofore practiced. Competition is inevitable; it is our duty to at least allow it to become respectable. It is said that a hunter, being cornered, for once thought best to call for Divine mercy. He said: "Oh, Lord, help me if you can, but if you can't help me, please don't help the bear." If we cannot help the poor and needy, let us not hinder others from doing this Christian duty.

"*To-day*," says Carlyle, "is a king in disguise." Who will say that the sad-faced old philosopher is wrong? Few of us see the beauties or grasp the benefits of the present. In reaching out and struggling for some future prize we trample under foot many a present blessing, and overlook many an opportunity of infusing sunshine into our homes and the lives about us. He who habitually brings home with him at night a smiling face and cheerful greeting, is more of a benefactor than he imagines. Cheerfulness left out, home is the dullest place in the world. The wisest of us are content to take to-day at its worth, and are not over-anxious about the future.

DR. GEO. WATT.

TARTRATE OF CHINOLINE IN PYORRHEA ALVEOLARIS.

[New England Journal of Dentistry.]

A friend writes us as follows: "As you say, in the May number of the JOURNAL, antiseptics have become the 'burning question' of the day, but I believe there will be found something more in the action of useful antiseptics on tissues than the germicide effect. In this connection, I have in my practice recently obtained results in the treatment of pyorrhea alveolaris which I never accomplished before, i. e., the *complete closure and healing of deep pockets* beside roots of teeth, by the use of tartrate of chinoline (injected into the pockets about three times a week.) I have used hydrogen peroxide, H_2O_2, but cannot see very much in it except its cleansing—oxidizing—effect. Corrosive sublimate—bichloride of mercury—I have only used a few times, and cannot as yet form any opinion as to its efficiency, but I have no doubt it will fill a large place somewhere in our work.

In our own practice, these cases of deep pockets of pyorrhea alveolaris yield most readily to a treatment of bichloride of mercury, 1-1,000, injected two or three times a week. Our first treatment is of course, the removal of all deposits of tartar and necrosed bone, after which the pocket is injected as above. Cases which we should heretofore have expected would require *months* to heal, under the bichloride treatment close up and heal perfectly in as many *weeks*. Cases yield readily to this treatment that have successfully withstood carbolic acid, eucalyptol, peroxide of hydrogen, chloride of zinc, etc.

We also find the bichloride of mercury most excellent for disinfecting putrescent pulp canals. It is more rapid and thorough than anything else we have used. For this purpose we also use a solution of 1-1,000. It is non-coagulative, hence more *penetrating* in its influence. Carbolic acid so effectually *coagulates* albumen that the *agents* of sepsis may not be reached, for much time at least, but a little below the surface, and the putrefactive process may continue much longer in the tubules of the tooth than would be the case if a powerfully penetrating antiseptic was first used. After a single dressing of bichloride has been used it is, of course, well to follow with carbolic acid, or some other coagulating agent.

It seems like a trite saying to repeat, that a successful practice depends upon a diagnosis wherein is apprehended, to the fullest extent, the *exact* conditions of changes going on in the tissues and the causes which lead to those changes, and an *exact* understanding of the action of the remedies used; but it is a saying that, heretofore, never needed to be urged to the extent that it does to-day. A purely empirical practice should no longer be tolerated. For this reason we are to be congratulated that the scientific world is engaged, as never before, in the study of minute pathological changes, and the positive

and direct action of remedies, especially along the line of septics and antiseptics.

THE VALUE OF VARIOUS FOODS AND THEIR MODE OF DIGESTION.

DR. JOHN WILDE.

Of the various foods:

1st. All those containing proteid or casein matter stand at the head. They consist of the various meats, fish, fowl, eggs, and milk. Bread, on account of its containing gluten, together with other food, as starch and fatty matter, is called the staff of life, and comes under this head.

2nd. The various vegetables, which differ much in nutritive value, but which all contain starch in large quantities, with a very small proportion of protein. These are potatoes, the cabbage tribe, carrots, turnips, etc., the latter containing so much water as to be the vehicle of very little nourishment; also arrowroot, sago, rice, tapioca, and the like.

3d. The fat of meats, butter, cream, vegetable oils, etc. These three descriptions of food are essential to sustain life, and each require a special method or process of digestion, and we shall now proceed to describe the first of these processes—viz., that called

MASTICATION AND INSALIVATION.—When a piece of bread and meat is introduced into the mouth, the teeth grind and tear it, the saliva is poured out from the glands in the neighborhood, and this mixes with the food, which, by the movement of the tongue, is incorporated into a mass and swallowed; after passing down the gullet (æsophagus) it enters the stomach. Now let us see what has happened up to this point. The meat (proteid) has been pounded by chewing, which exposes a large surface to the action of the gastric juice when it reaches the stomach, but as yet it has suffered no digestion; the fatty matter of the meat has been thoroughly mixed with the albuminous element of the meat, but still no change has taken place, no digestion has ensued; the starchy matter of the bread, however, has had a complete revolution effected in it. It is now no longer starch, but sugar, or is in the way to becoming so. Some starch escapes, and finds its way into the stomach, but the bulk of it has undergone a change. Whereas, before, the starch was insoluble, it has now become soluble, because it is sugar. If you hold a little starch in the mouth, for a time, you can perceive a sweetish taste; it is becoming sugar. According to Dr. Chambers, the sugar is immediately absorbed by the mouth or gullet, and scarcely any reaches the stomach, for as he says, "Chemists have great difficulty in finding the sugar in the stomach." But this is an exageration. Much of it undoubtedly does

reach the stomach as starch, though, owing to its being immediately converted into lactic acid it is not recognized as such for any considerable length of time.

The saliva, the potent magican which is capable of effecting this wonderful transformation, is a compound fluid, consisting of the united secretion of several special glands—viz., the parotid, submaxillary, and sublingual, and of the mucus from the follicular glands of the mucous membrane of the mouth. These differ in character and consistency. Some are supposed to simply secrete a diluting fluid, while the others are said to form the peculiar powerful principle called "ptyalin," which acts on the starch.

We have already said that the starch particles are contained in a wrapper or envelope, which cooking ought to destroy, so as to set free the starch. If this is not done the saliva cannot convert it into sugar.

COOKING IS DIGESTION.—Let us see if we cannot learn a lesson from the facts known representing insalvation. It will be seen first how essential proper cooking is in a household. Cooking is in fact the first process of digestion. It is significative of the wisdom of the ancients that the same latin word, "coquo," means "I cook," and "I digest." Cicero uses it in speaking of mental digestion—"bene coctus sermo," a well "digested" (thought-over) discourse. The Greeks, too, used the same word to express the same acts. Man has been defined to be a "cooking animal." Surely this separates him from the monkeys in spite of Mr. Darwin. We have, it is true, seen a picture of one of those animals roasting chestnuts—thus cooking his starch in a legitimate way, and using Pussy's paw, "like a Christian!" to take them from the fire, but we are disposed to think this human or inhuman proceeding on the part of Pug originated in the imagination of the artist.

Badly-cooked potatoes, bread, or arrowroot, will pass into the starch unaltered, and if there were not other digestive fluids called pancreatic, and intestinal, farther on, indigestion from this cause would be much more frequent than it is. Take care, therefore, never to eat hard wax-like potatoes, for these are great offenders in this respect.

THOROUGH MASTICATION NECESSARY.—Next observe how necessary is thorough mastication. Even if starch is cooked, the food containing it must be exposed a sufficient time to the action of the saliva, and be so intimately mixed with it that the conversion above alluded to may take place. Children should be taught not to "bolt" their food, and persons with imperfect teeth, or no teeth at all, should have potatoes thoroughly mashed, and turn them well about in their mouth with their tongue to produce insalivation, the meat also being chewed

well to increase its surfaces. Again never eat much when suffering from great anxiety. Depressing emotions cause deficiency of saliva or a dry mouth.. The parched mouth of fear and anxiety is well known. *If there is no saliva, there is no conversion of starch.* Let the food, therefore, be of the proteid kind—meat, beef-tea, milk, etc.

During fever, too, when the saliva secretion is checked, and the mouth is dry, it need scarcely be pointed out how unsuitable our ordinary diet is. The parched mouth loathes the usual starchy food by instinct, and the appetite for solids is in abeyance. How absurd, then, to expect people to eat as usual when the digestive fluids are absent. Some people are apt to think their case a dangerous one if their appetite has departed, and they will force their friends to eat, to their great injury. Physiology shows us the cause of the mischief, and points out what food is most suitable, because, as we have before indicated, no substance is food unless it is assimilable, and potatoes and bread not being converted into sugar, through the absence of saliva, are not assimilable in febrile diseases, and therefore improper.—*Missouri Dental Journal.*

DISCOLORATION OF GOLD FILLINGS.

On page 191 of the ITEMS OF INTEREST for April, 1884, I see the above heading. The reason there assigned for this dark appearance is "the oxidation of minute particles of our steel instruments, which are worked into them in the process of making the fillings."

This is the "latest out," at least as far as I have observed, and it is offered in such a presentable form that to read it is almost to be convinced of its logical *facts*. (?) Had I known this some years ago, when Mrs. Jesse Jumbo asked me "what makes the gold fillings in my front teeth turn so dark?" I could have given her a *plausible* (?) excuse, without being obliged to either evade the truth or to acknowledge my own shortcomings in not *condensing the gold thoroughly before allowing it to get wet* with the fluids of the mouth. *

There is one question, however, that I would like to ask Professor Chandler in regard to this matter. What is the reason that a mesial filling of semi-cohesive No. 4 globe foil in a superior lateral will look bright and yellow, and a distal filling in the adjoining central will look dark and "smutchy," when both fillings were inserted by the same hand, at the same sitting, of the same book of gold, using an annealing lamp and rubber dam in both cases, and *the same instruments?*

G. W. ADAMS, Bristol, Pa.

[*We do not believe a want of condensation is the cause of discoloration, nor "allowing it to get wet" before being thoroughly condensed, for we have seen very many such cases where there was no discoloration, and many where discoloration was on the surface of well condensed fillings.—ED.]

A MOTHER TO MOTHERS.

FILLING THE BABY'S TEETH.

[From Southern Dental Journal.]

You will perhaps laugh and think I am joking, if I tell you that one of my own children had a tooth filled before he was a year old! But it is nevertheless a fact. The little fellow was about nine months old when the "upper central incisors" (or first little upper teeth in the centre of the jaw) came through. I soon noticed that one of them was marred by a little round yellow spot on its front face, near the cutting edge. In a few weeks this formed a cavity of decay. Fearing the toothache for my tender babe, when he was eleven month old, I seated myself in the chair of the dentist, with the baby *sound asleep in my arms.* Holding the upper lip out of the way with my finger, with keen instruments all the decayed portions were removed so deftly that the babe never stirred nor woke, and the cavity was filled with "white filling."

The baby had the whooping-cough, however, at the time, and being seized with a paroxysm during the operation, the filling got wet before it had time to harden and did not prove durable.

At the age of thirteen months the tooth was therefore filled again; this time with silver, the baby being wideawake and sitting alone in the big chair (with a little chair in it) apparently enjoying the honor conferred upon him, and occasionally demanding to "thpit" as he had seen done by the preceding patient.

This preserved the tooth until the age of three years, when the tooth having worn down from the edge, the filling fell out. The cavity being white and clean, no further decay having taken place, it was again filled; this time with gold, which preserved it perfectly until it fell from the gums at the proper time, with the root well absorbed.

As illustrating the effect that injuries to the first teeth may have upon the second, I will add that the permanent tooth which replaced that defective one, has a similar but white spot upon it, which, however, shows no tendency to decay, and is the *only blemish* in the otherwise perfect full set of teeth of a boy now fifteen years old, and in whose case the system laid down in these letters has been fully carried out.

Therefore, I say again, carry your children early to the dentist, that the very first symptoms of decay may be detected and checked. It will not do to rely upon your own judgment as to the real condition of the teeth.

Notwithstanding all your care, decay is so insidious and due to so many remote, and perhaps hereditary causes, that it may obtain a

foothold all unsuspected by you, to be discovered only by the trained eye and delicate touch of the instrument of the skilled dentist.

The integrity and regularity of the second set, as well as the health of your child, depends so much upon the condition of the first set, that there should be no guess work about the latter.

Take your child, therefore, regularly to the dentist every few months after it has a mouthful of teeth. Have a clear understanding with him from the beginning, that those teeth are to be henceforth under his special charge; that, feeling your need of his advice and co-operation in their care, you intend conscientiously to second his efforts for their preservation, and that you share with him the responsibility of their integrity. With such an understanding the charges for mere examination at regular intervals will be but light; and there will rarely be any necessity for anything else, in a large majority of cases, if the precepts herein laid down are faithfully followed out.

Dr. Homer Judd sums up the reasons for all this care of the baby teeth as follows:

1st. Because they are needed for daily use.

2d. Because it will prevent a great amount of pain and sickness.

3d. Because by these means the nutritive process will be carried on better, and as a consequence, the health, growth and development of children will be better, than would be the case if these organs were prematurely lost, and a better development of all parts will be thus attained, and

4th. As the regularity of the permanent teeth depends very much upon the proper development of the maxillary bones, we have no doubt but that the proper care and retention of the deciduous set will exert a salutary influence upon the former.

The bichloride of mercury, one of the strongest parasiticides, and one of the most violent of corrosives, has fallen into favor from the recognition of this requirement. It is now used by many surgeons for external purposes (1-1000), by occulists, (1-5000).

Bichloride of mercury, being a strong corrosive, can not be used in full strength against any of the soft vascular tissues. A very concentrated solution of this salt cannot be made—five grains in three ounces of water (1-1000) being a saturated solution. Water will, however, hold in suspension considerable more than this. I have succeeded in making twelve grains to three ounces, or four grains to the ounce disappear, but if allowed to stand the excess in the solution will sublime. This is the antiseptic that dental surgeons should use. They can get a suspended solution which will be much stronger than the general surgeon uses. It lacks odor and taste, and is most efficient.

DR. D. S. JUNKERMAN.

ANATOMY AND PHYSIOLOGY OF CLEFT PALATE.

A. P. SOUTHWICK, M. D. S., BUFFALO.

The primary cause of these organic lesions is, I think, but imperfectly understood by the best physiologists of the times, some attributing the defect to one cause and some to another, and both differing widely in their individual views. We often learn valuable lessons and facts worth preserving by the study of the animal kingdom. This calls to mind an historic fact bearing upon this very subject. A gentleman became the possessor of a pair of tiger cubs and determined as far as possible to domesticate them, and to that end fed them but little meat, confining them mostly to a vegetable diet. The cubs grew to full maturity, apparently none the worse for their change of diet and habits. In due course of time the tigress presented her consort with a pair of twins, but they were doomed to die in early life, as the roof of the mouth was wanting, a condition I believe that never occurs with animals in their natural state. The experiment was then tried of feeding the animals on small game just as killed. The result was that the next pair of cubs was perfect. This would go to show that in the first instance the food of the parents was deficient in bone-making material, and the result of the experiment of feeding them on small boned animals that they could masticate, as they would in the wild state, thereby giving them the lime as nature intended, was productive of perfect formation. Congenital cleft palate, therefore, is evidently the result of perverted or defective nutrition, which results from a variety of causes more or less obscure.

But before we proceed to the description of the malformed condition and its treatment, let us for a few moments give our attention to the parts involved within the scope of this paper in their normal condition. The greater portion of the roof of the mouth is composed of two horizontal plates of bone arising from the inner surface of the alveolar process, and is developed by two lateral halves uniting at the center with the vomer. The anterior portion, including the incisor portion, is supposed to be developed by two distinct centers; but the early age at which these bones are formed makes it somewhat difficult to determine with precision the number of distinct points of ossification. But the convincing proof of distinct centers for the anterior portion is the course of the fissure through the process, as in the case of double fissure, and what is called double hair lip, isolating the incisor portion and leaving it attached to the vomer. At the posterior edge of the hard palate is situated the two palate bones, to which are attached the tensior palati and azygos muscles, also the body of the soft palate. The soft palate extends downward and backward, making an incomplete curtain or septum between the mouth and

pharynx, and in a state of rest its muscles are relaxed and it hangs pendant near the base of the tongue. The principal muscles controlling its action in deglutition or articulation, or from any cause that makes it necessary to close the passage between the pharynx and the nares, are the levator palati, tensor palati, and the azygos uvulæ. The levator palati arises from the under surface of the temporal bone, passing downward and inward, its fibers spreading out on the posterior surface of the soft palate. The special function of this muscle is to raise the posterior portion of the palate into nearly a horizontal position, thereby bringing it in contact with the posterior wall of the pharynx. The tensor palati is composed of two portions, a vertical and harizontal. The vertical portion arises from the fossa at the base of the internal pterygoid plate, descending it terminates in a tendon that winds around the hamular process, when it again expands into the fibrous covering of the anterior portion of the palate. The function of this compound muscle and aponeurotic tendon is to make the palate tense; or, in other words, to draw or bring its lateral edges out so as to meet the muscles of the pharynx.

The azygos uvulæ is situated along the middle line of the velum near the posterior surface. This muscle consists of two narrow slips of pale fibers, which arise from the spine of the posterior border of the palate bones and from the antiguous aponeurosis of the velum and tensor palati. Its action is to elevate the uvula and by contraction shorten the central part of the soft palate, thereby making the posterior edge of the velum adapt itself more perfectly to the uneven surface of the posterior wall of the pharynx.

I have given you this short and incomplete description of the anatomy of the parts principally involved in cases of congenital cleft, that you may the more readily comprehend the condition of the same in the abnormal state. When divided through the center, the mechanical action of these muscles is to widen the passage rather than close it. The *tensor* and *levator* having no duty to perform have become dwarfed and consequently inactive. As a proof of this: in the normal condition their action is to raise and make tense the palate in the act of deglutition and articulation; in the abnormal condition in the act of deglutition the two sides of the divided curtain approach each other. This action is produced by the anterior portion of the superior constrictor and the palato glossus, while the divided fibers of the azygos contract upon themselves and shorten the remnants of the two sides of the remaining palate.

In making an appliance I am of the opinion that we have not given the attention we ought to the action of remaining muscles of the pharynx that are not involved in the deformity and on which we must depend to assist us in closing the passage. I refer to the superior

constrictor, palato glossus, and palato pharyngeus. We are all aware that any of the muscles of the body that are required to do double duty constantly, soon develop in proportion to the tax that is put upon them. This rule holds good with the muscles of the pharynx. The superior constrictors in their efforts to close the passage in articulation approach each other much nearer in the abnormal state than in the normal. The same is true of the remaining muscles.

Fissures of the palate present a variety of forms, varying as their number. There is but one feature of resemblance among all the varieties I have ever met with. The division through the soft parts is always exactly in the center, dividing the azygos muscle, which you remember in the normal state is composed of two parts running parallel with each other and terminating at their posterior extremities in two separate uvulæ. The variations are confined to the hard palate. The most common form to be met with is a division through the center of the arch, leaving about equal parts of the bone on each side. In this variety the vomer also is wanting. Sometimes this variety passes through the alveoli by deviating from the center anteriorly and passing between the lateral and canine teeth. Sometimes the fissure is entirely upon one side, leaving the vomer and opposite side perfect. Again you will find double fissure, leaving the vomer suspended in the center. This variety is usually accompanied by what is called double hair lip. But it is useless to attempt to describe all the different forms and conditions under which they present themselves, for the treatment of all fissures or holes in the hard palate is the same. It must be effected by surgical operation, or by covering the fissure with a plate of some material.

Obdurators of a variety of forms have been in use for many years. The first definite description was by Ambroise Paré, about 1541. His appliances were chiefly applied to perforations of the hard palate. But the idea of constructing an obdurator of one piece when the fissure extended through the soft palate is of comparatively recent date. Dr. Wilhelm Suersen, of Hamburg, was one of the first to recognize the action of the muscles of the pharynx, and to make the fixture of one piece and to depend upon the muscles closing around the appliance to stop the passage to the nares. Probably the most perfect appliance, one that comes nearest perfection in restoring and producing nearly perfect speech, is composed of two portions, a hard and a soft portion, very nearly imitating nature by extending the sides of the posterior or soft portion nearly to the lateral walls of the pharynx, and requiring but little action of the superior constrictor to meet it and close the passage. The fissure in the hard palate needs to be covered by a plate of some material and attached to the posterior or flexible portion. But an appliance made in this manner has to my mind, and has so

proved by experience, many objections. It deteriorates in the mouth gradually but surely, the edges losing their elasticity and curling up, thereby failing to close the passage when required. The consequence is that what the wearer had acquired while it was perfect, he gradually loses as the appliance wears out, and when a new piece is attached the patient commences again with little improvement on the first application.

In view of these facts I have been led to experiment with obdurators made in one piece, covering the fissure through the bone and extending nearly to the tuberosity of the atlas. At the posterior edge of the hard portion of the palate the appliance is made to pass above the remnants of the soft palate. From this point its form must partake of the shape of the cavity, or rather the shape the cavity assumes in deglution. Upon this depends the success of the appliance. If it is ill-shaped, or too small, so that it is impossible for the muscles to reach it, the passage remains unclosed and all sounds in articulation have more or less of the nasal tones. There can be no rule to guide the operator as to the proper size, as the cavity of the pharynx has no fixed dimensions, but on the contrary is as variable as the patients that need to be treated.

Some of the principal reasons why I prefer the hard palate to the flexible one are these:

Being imperishable it always remains the same, and whatever is acquired by its use is retained. Besides it is comparatively inexpensive, and this to most of the unfortunate class that require an appliance of some kind, is quite an important matter. As far as my observation goes, the major portion of all applicants wanting relief of this kind are more troubled with fissures, congenital or otherwise, in the pocketbook. So by simplifying the mode of treatment and bringing it within the reach of all, we are doing the greatest good to the greatest number.—*Transactions of the New York State Society.*

Skill and Fees.—Sir William Ferguson, after a successful operation on a Manchester millionaire, was asked by the patient to name his fee.

"Two hundred guineas."

"Two hundred guineas," exclaimed the patient.

"Yes," said Sir William. "You forget the life-long experience required to give the proper skill, the time and toil of the journey, and the loss of practice in London."

"But you have been only ten minutes about it," said old Dives.

"Oh! if that is your only objection," said Sir William, in his broad Scotch, "the next time I come, I'll keep ye an 'oor under the knife."—*British Medical Journal.*

SALIVARY CALCULUS REMOVED FROM A PATIENT.

The following report to the *Jour. of Am. Med. Association*, by J. J. Chisholm, M.D., and copied by the *Archives of Dentistry*, is interesting:

Mr. W., aged 73, consulted me for a glaucomatous trouble. During the consultation, he desired to know whether his defect of vision could be aggravated by a disease of long standing in the mouth. In inspeting this cavity, I found a large swelling under the tongue, on the right side of the frænum. It was a prominent elevation on the floor of the buccal cavity, extending from the inner face of the chin toward the root of the tongue. Its nature was apparent at a glance, for at the anterior and upper part of this large, round, fleshy mass was an opening one-fourth of an inch in diameter, through which could be seen the exposed surface of salivary calculus. A probe passed in through this opening entered into a large cyst, the thickened and distended duct of Wharton, which was filled with a solid calcareous mass. With a scissors I slit up the cyst wall, and removed from its bed a very large calculous of brownish white color, which weighed, when thoroughly dried, 159 grains. It was pear-shaped, the stem or contracted part having been moulded in the less dilated part of the salivary duct. The calculus was 1⅜ inches long, ¾ of an inch broad at its largest end, and ⅜ of an inch near its most contracted end.

A thread passed around the stone in its longest diameter measured 3⅜ inches. The circumference at the thickest part was 2¼ inches, and 1¼ inches around its most contracted portion or stem. The surface of the stone was rough. It could be easily cut with a knife, the section showing a laminated structure. A drop of acid upon the surface caused carbonic acid to bubble up, showing that carbonate of lime entered into its composition. Chemical analyses showed that phosphate of lime was the chief constituent. The tumor had annoyed the patient for a long time. Its peculiar nature was not suspected till revealed by ulceration of the sac.

Liberal Education is valuable for its own sake for the pleasure it adds to life, and it is an introduction to the society of the cultivated, thereby securing a more refined and better paying patronage. It is more valuable than any other form of advertising.

But the most classical education is of little worth without the formation of good habits. One may be ever so skilfull, yet if he is not affable and gentlemanly, cleanly in dress and person, and refined in language, no gentleman or gentlewoman will employ him. Little things determine our success, just as a pebble on the Rocky Mountains may deflect one stream to the Atlantic and another to the Pacific. Choose a high ideal and maintain it.—Dr. S. C. Stockton.

ISOMERISM.

The chemist, in analyzing certain bodies, notably the organic compounds, or compounds of carbon with hydrogen and oxygen, is frequently puzzled to find that certain substances varying widely from each other in their physical characteristics have exactly the same chemical composition. They are made up of the same elements and in the same proportion. Thus butyric acid and acetic ether differ entirely from each other in specific gravity, taste and odor, in fact, they are two entirely different substances; yet both have the chemical formula $C_4H_8O_2$. Or, to take a more familiar example, starch has the same chemical symbol, $C_6H_{10}O_5$, as the vegetable fiber, or cellulose, of which our cotton and linen garments are composed, and to the appearance of which it so greatly adds. The number of these isomeric bodies, as they are called, is very great; many thousands of them being either known, or theoretically possible. For, starting with any given compound whose chemical formula is known, it is easy to calculate just how many isomers of it are possible; and it is a strong confirmation of the theory now held, that in no case has a greater number of isomers been formed from any given compound than is shown to be possible according to the theory.

According to the modern views of chemistry, all matter is composed of infinitesimally small molecules, in which the physical integrity of the substance resides, and which cannot be further subdivided without changing the nature of the substance. Thus a drop of water is made up of many billions of little molecules or particles, each of which is a mass of water, and composed of one atom of oxygen and two of hydrogen, H–O–H. These molecules have a definite size and weight. But if we attempt to subdivide them, as we can do, by an electric current, or in other ways, the molecule of water is broken up, and, instead of water, we obtain the gases of which it is composed. As an illustration of this theory of the constitution of matter, we may compare the molecule of a compound body, like water, alcohol, or starch, to a building, which, although perfect in itself, is composed of many separate bricks, corresponding to the atoms. It is evident that the same bricks might be so arranged as to form a great number of entirely different buildings; and, similarly, the same atoms in a molecule may be so arranged to form bodies of physically different characteristics.

The most perfect root-filling that I have employed is a solution of gutta-percha in chloroform. Previous to this I had used oxychloride of zinc, and the last couple of years I have been in the habit of using a solution of iodoform in ether, and this in alveolar abscess has the most remarkable action I have ever seen.—*Bodecker.*

BY THE SWEAT OF THY FACE, ETC.

The editorial "The Poor Dentists' Recreation," in the ITEMS for August, broaches a subject that is too often neglected. It is patent to all conversant with physiology that, in order to preserve a healthy equilibrium between the various organs, it is necessary for those engaged in callings that are sedentary or that demand a certain amount of mental strain to indulge in some physical exercise. To this end the use of the trapeze, dumb bells, Indian clubs, etc., has been advised; but they are objectionable, because they are used indoors and without any incentive other than the pursuit of health. When a person is constantly thinking of his health, and only going through routine and mere mechanical motions for its betterment, he will not derive much benefit from *any* exercise.

My own experience may benefit some who read this. Two years ago I weighed 198, had no appetite, was obliged to sit down to get my breath after climbing two flights of stairs, and had headaches half of the time. I lived within 150 yards of my office. I commenced walking a certain distance every day, but it soon became a task and of no benefit. I then moved a mile off and felt somewhat improved. I then moved to a place two miles distant from my office and walked to and from it, unless the weather was too bad, but still I did not improve as I desired. Then I bought a bicycle, and rode to and from my office every day. The result is I weigh 22 pounds less, have a good appetite and no headaches.

The reason is the pleasure experienced takes away all thoughts of health being the object, and the deep inspirations necessitated by climbing a grade, or by rapid riding on a level, send the oxygen in large quantities to the remotest recesses of the lungs and the activity of the emunctories of the skin eliminates a large amount of effete material.

There is a sense of having been *cleaned out* that one experiences after a ride and a *good sweat* that must be experienced to be appreciated and cannot be comprehended by non-riders.

WILLIAM D. KEMPTON, Cincinnati, O.

An English experimentalist finds that for every pound of mineral matter assimilated by a plant an average of 2000 pounds of water is absorbed. At the French observatory of Mont Souris it was found that in rich soil 7,227 pounds of water passed through the roots of the wheat plants for every pound of grain produced, while in a very poor soil 2,693 pounds of water passed through the wheat roots for each pound of grain matured.—*Atkinson.*

Promptness, system and thoroughness accomplish wonders.

A FINE PREPARATION OF IODOFORM.

EDITOR ITEMS:

I am glad to see that iodoform is coming so prominently before our profession as a remedy for the treatment of the putrid canals of teeth. I have been so successful in treating cases of this kind that I feel it my duty, as well as my privilege, to contribute my mite.

The great objection some have to the use of iodoform is its odor. I think I can give a formula to which the most fastidious cannot object; the odor is completely subdued, and yet does not effect any of its virtues as a remedy.

I mail a sample bottle of this solution that you may judge for yourself. The formula is as follows:

℞. Iodoform.....1-25th gr.
Camphor.....1-4th ʒ
Alcohol.....1 ʒ M.

Dissolve the camphor in alcohol; then add the iodoform. You will be surprised to see how quickly the camphor solution will take up the iodoform.

Now, if the filings of celluloid are added to this mixture in sufficient quantity to make a thick collodion (the celluloid will dissolve in about six hours) you have one of the best materials to apply to an exposed pulp before capping with oxyphosphate. Also, it is first-rate for closing the apicial foramen and canalliculi of the teeth.

A. P. JOHNSTON, Anderson, S. C.

[The iodoform in the sample sent us is certainly well disguised by the camphor, and Dr. Johnston's suggestion of adding the filings of celluloid for covering exposed pulps, we should think a good one.—ED.]

I have recently made a discovery in working rubber that, I think, will be of great service to those who use rubber. Every one is familiar with the fact that in vulcanizing thick rubber it often becomes spongy, and is really spoiled, and no certain way has, as yet, been devised to obviate it. I have adopted a plan that completely overcomes the difficulty, and makes any thickness that may be needed, for the restoration of features, or anything of the kind. The method of accomplishing this is to take strips of vulcanized rubber of proper size, and thoroughly roughened with a rough file, or drill holes as in the preparation of a broken plate. Pack in these, in proper position, as many as the space will conveniently hold, so as to be entirely covered by the soft rubber, then vulcanize as usual. This will make strong, solid work, and without a possibility of sponginess.

J. S. BRYANT,
In Dental Register.

[The roughening or holes are not necessary either in this or in mending plates. If the surfaces of the pieces are scraped clean, the new rubber will adhere thoroughly.—ED. ITEMS.]

NON-ERUPTION OF TEETH.

July 21, 1884.

I read of a queer specimen of humanity in your vicinity in the Items of Vol. 5, No. 8. I write you of another freak of nature that has come under my observation. John M. Lee, eight years old, stout, robust, well grown, he has four teeth only. These are like tushes, two in the upper and two in the lower jaw. He has no sweat glands, and was never known to perspire in his life. From the diminutive size of his jaws and very small amount of alveolus, I think he will never have any more teeth. He has but a little hair, which is like white wool. He has to keep himself sponged all the time in hot weather. He has a bright intellect, and takes pleasure in school.

T. D. JONS, Flyn's Lick, Tenn.

EDITOR ITEMS:

The ITEMS OF INTEREST for August, 1884, states that no change can come to the jaw from extraction of the teeth; that "the roots of the teeth do not enter the jaw," etc.

I see many lower maxillæ in which the roots penetrate to within one-eighth to one-sixteenth of an inch of the entire distance from neck of tooth to bore of bone; so that if the bone were sawed off on a plane with the roots of the teeth, the lower layer impenetrated by the roots would not be more than one-eighth or one-sixteenth inch in thickness. Actual measurement of the sockets of lower bicuspids and canines will demonstrate, on extraction, the near proximity of their root apices to the inferior aspect of the bone.

H.

EDITOR ITEMS:

Here is an *Item of Interest.* Dr. Sanborn says in the July ITEMS: "The nervi nerviorum of the neurilema of the nerves have piriphirial extremities everywhere present." Is'nt that a rich idea? That is, I suppose it must be, or so much pains would not have been taken to hide it from us "common people." Is this the plain language promised us by the editor of the ITEMS? I imagine that Dr. Sanborn wishes to impress us that he is a great scholar. But great scholars are generally plain and unostentatious in their language. Besides, in the very next sentence he shows us he is not so great a scholar, after all. He says: "If you wound a nerve in any part of its length, pain is the result." There is no sensation in the body of a nerve, it is confined to its extremity. Even the brain itself—which is hardly more than the nerves rolled up—can be cut with less pain than a muscle. You may sever the trunk of a nerve with much less pain than the prick of a needle at the extremity of one of its smallest branches.

I think the whole article of the Doctor's is about as lucid as the

above quotation. I doubt if half a dozen readers who read "How Anesthetics Anethize" will be enlightened. Let us have plain English, and as few words as will clearly express the meaning.

T. BRAMWELL.

MEETING OF THE AMERICAN DENTAL ASSOCIATION.

ITEMS OF INTEREST.

ESTEEMED EDITOR:—The twenty-fourth annual session of the American Dental Association convened at Saratoga Springs, August 5, 1884, the President, Dr. E. T. Darby, of Philadelphia, in the chair.

The morning session was entirety taken up by business. At the evening session, after the President had read his address, Dr. A. W. Harlan, of Chicago, chairman of Section VI—Pathology, Therapeutics and Materia Medica—presented a paper he had prepared on Pyorrhea Alveolaris, as the report from his section.

Dr. Harlan has made a special study of this disease, and his paper was a continuation of that presented last year on the same subject. He said: Pyorrhea Alveolaris must not be confounded with the irritation caused by salivary or sanguinary calculus. While there is no question but that their presence is always an aggravation, and their thorough removal essential to its cure, it is doubtful if either deposit does or can of itself cause the disease known as pyorrhea alveolaris. It is possible that in some conditions of the system irritation from tartar deposits may be the initial step; but from the fact that severe cases are found where the deposit is either very slight or altogether absent, and also cases where there are tartar deposits causing more or less irritation without the disease being present, we may safely consider it a distinct pathological condition. He could not, at present, explain the etiology of the disease, nor yet was he fully convinced of the exact seat of trouble, or the pathological changes accompanying it. In severe cases, in fact in all, there was caries of the alveolar process, but whether that was the primary lesion or the result of the disease he could not yet determine. It was thought by many to be a germ disease, but here again there was doubt whether the germs, always found associated with it, were the cause of the trouble, or whether the condition of the parts simply favored their development.

He thought the disease largely curable, and urged the importance of careful and complete removal of all tartar and other deposits from the teeth, and the removal of the carious portions of the alveolar process, by means of suitable instruments. He thought it very important to do this with as little irritation to the gums as possible, and

called attention to a set of instruments he had devised for the purpose. They are on the market, he having placed the patterns in the hands of the S. S. White Manufacturing Company. Others, perhaps, may be as good, but with these he had been able to reach all portions of the teeth and alveolar border with more ease and less irritation of the soft tissues than with any he had used.

If there are several teeth involved, he preferred not to do all at one sitting, but to take not more than three at once. After the teeth were thoroughly cleaned he applied a solution of iodide of zinc, varying in strength from say 12 grains to the ounce of water, to a thick paste in severe and obstinate cases. It may be applied with the syringe, but he preferred to wrap a little cotton around the instrument, dip it into the solution and bathe the teeth, especially passing it into the pockets, and deep down between the teeth and gums. The peroxide of hydrogen he finds useful as an application immediately after removing the tartar. He was using several other remedies that promised well, but until he had used them more and studied their effects closer, preferred not to recommend them.

In the disscussion which followed the reading of the paper, Dr. Harlan was complimented upon the care and patience with which he followed up the subject, and the hope expressed that he would continue his efforts in that direction.

Dr. Barrett, of Buffalo, was also in doubt as to its origin and its pathology, and regretted that at present our treatment must be emperical and palliative. He thought the most prominent pathological expression was a necrosis of the alveolar border, and in treatment found it best to cut away all diseased portions, remove all deposits accessible, and mainly rely upon zinc chloride, using it in various degrees of strength according as he desired an escharotic, or only a slight stimulation, from a saturate solution to one of a few grains to the ounce of water. When used strong it produced great pain for a time, but in severe cases it seemed to have better effect than the long-continued use of a weaker solution. He also used occasionally the aromatic sulphuric acid, but his main dependence was upon his removal of the diseased alveolar border, and all tartar deposits, and the application of zinc chloride. He did not always succeed.

Dr. Atkinson, of New York, took him to task in regard to using a saturate solution of zinc chloride, saying that it was a meaningless expression. He had never been able to make a saturate solution; the solution would always take up more of the salt until it became a thick paste. He contended that forty grains to the ounce of distilled water coagulated albumen to exactly the same extent as it was coagulated in an impregnated egg during incubation; and to use it stronger was useless if we only desired to stimulate diseased tissues to heal the

action. He preferred to treat pyorrhœa alveolaris with aromatic sulphuric acid, or aquæ regia, or, in some cases, one part to seven of glycerine.

Dr. C. N. Pierce, of Philadelphia, stated that patients suffering from urinary calculus always had pyorrhœa alveolaris of one or more teeth; he was unable to explain why. His attention had been called to it, and in numerous cases that had come under his notice he had found it to be the case; pyorrhœa alveolaris exists without the former trouble, however. He thought there might be error of diagnosis, and severe cases of irritation of the gum, from tartar or other causes, was sometimes mistaken for pyorrhœa—the former curable on removing the cause—but he had never known a case of true pyorrhœa to be cured. The best he had been able to accomplish was to relieve, and, by careful and regular attention, retain the teeth for a few years, perhaps five or ten. He thought some reported permanent cures were cases of simple irritation, the two conditions at times closely resembling each other.

Dr. Shepard, of Boston, reported a case. A patient under treatment for syphilis was brought to him by his physician who was obliged to suspend the mercurial treatment he was pursuing on account of the condition of the patient's mouth. It was in a terrible condition—all the teeth loose, the gums swollen, and pus exuding from their margins. The doctor diagnosed a case of pyorrhœa, aggravated by the general condition of the system. At his suggestion the mercurial treatment was suspended; and after using remedies to reduce the inflamed condition of the mouth, he carefully removed all deposits, cut away the necrosed alveolar border, and injected aromatic sulphuric acid—one part to four of water—freely into the pockets and the spaces between the teeth and gums. The improvement was rapid, and, in a little while—the patient's health in the meantime having very much improved—the mercurial treatment was resumed without any return of trouble around the teeth.

It was suggested, by several present, that this might be a case of irritation due to the tartar deposits, aggravated by the specific disease, and, perhaps, an intolerance to the remedy used to combat it; and that its non-return, when treatment was resumed, might be due to the former treatment having had a beneficial effect upon the system.

Dr. Shepard did not think so. The causes stated were undoubted agravations; but the real trouble, he had no doubt, was pyorrhœa. When the case was last seen there seemed every prospect of a complete and permanent cure.

Dr. James Truman, of Philadelphia, thought the disease was merely a modified alveolar abscess, due to irritation of foreign matter in the form of deposits, inciting inflamation of the pericementum;

the abscess, instead of being at the apex of the root and involving a single tooth—as is usually the case in alveolar abscess—is situated around the root, and at the margin of the gum. This somewhat changes its character, and he thought the symptoms were very much aggravated by the presence of bacteria. He also thought the changed condition and necrosis of the alveolar border were due to—and not the cause of—the disease. The treatment he advised was to first get rid of the bacteria, and he knew of nothing better than chloride of zinc. He did not approve of the aromatic sulphuric acid; the additions to it he considered hurtful. He presumed the acid was used, partly at least, to dissolve any portion of diseased bone that had escaped the instrument. Now, if we take the aromatic sulphuric acid, which is already diluted and of uncertain strength, and still furtther dilute it as much as is recommended, it will be so weak as to have no appreciable action at all. He preferred to take the pure acid and dilute it to suit the case. He used it occasionally, and always immediately followed it with bicarbonate of soda to neutralize the acid, and, as far as possible, prevent any injurious action upon the teeth. He referred to an accurate description of this disease—the best he had seen—published by a German writer in the dental journals nearly twenty years ago. While the disease was modified to a great extent by systemic conditions, he did not consider it a systemic, but a local disease.

Dr. W. Storer How, of Philadelphia, presented a drop tube, designed for applying medicine in this disease. It is provided with a long platina tube of small diameter, fused into the glass and bent at a convenient angle to reach the points where the remedy is needed.

Dr. Harlan spoke of the germ theory of the disease, and advocated the repeated use of germicides. While all the germs present may be destroyed by a single application, the spores, which are very difficult to kill, may escape, and in a short time produce a new crop. Hence it is necessary to make frequent applications until the conditions favorable to their development cease to exist. This remark was made in answer to a member who advocated not disturbing the parts for a week or ten days after the first application.

He stated that he had visited a number of dentists at their request, who had difficult cases of pyorrhea under treatment, and when he asked to see the instruments, or the appropriate remedies, that he might demonstrate their use, he was surprised to find they were not at hand. How can a dentist expect to succeed in treating a disease if he does not use the means recognized as necessary for its cure.

Dr. E. Parmly Brown, of Flushing, N. Y., referred to the hereditary character of pyorrhea. How often, when treatiug a case the patient remarks: "My father's" or "my mother's teeth all dropped out," showing unmistakably that with them it was hereditary. He

doubted if such a trouble could be permanently cured, especially if it was inherited. He had cured cases, and so no doubt had many of the gentlemen who had spoken, but who can say what will be the condition of those cases, say five years from now? No doubt, in many cases, it would recur.

[Concluded in next number.]

CONTINUOUS GUM FACINGS.

DR. L. P. HASKELL, CHICAGO.*

Many dentists are inquiring "what are they?"

They are an old humbug brought out soon after the introduction of rubber plates, and used by dentists in various localities, thoroughly tested, and discarded as worthless more than twenty years ago.

Dr. John C. Fuller, of this city, took out a patent for the thing sixteen years ago, it having then been used by many dentists east and west for several years.

And now it has been brought to light again, via England where it was introduced to aid in the sale of the "gas furnace."

It consists in attaching continuous gum work to rubber plates.

It is a very pretty thing to look at, but "more ornamental than useful."

What are the objections to it? The elasticity of the rubber or tendency to yield to pressure will cause it to crack and soon become a wreck. But if broken from that or any other cause in order to repair the work it must be taken to pieces, the continuous gum put through the furnace (and the liability of its changing shape and the teeth being displaced and broken is a hundred times greater than that of a properly made full set of an entire continuous gum plate; in fact in the latter case I experience no difficulty), and then a new rubber plate made! If any dentist wishes to go through that process in order to replace a tooth on a rubber plate he is welcome to the experience. I have only to say one or two years experience with the process will make him wish he had never touched it.

No, gentlemen, give your patients straight work of rubber, accomplish all you possibly can with it, though at best it is the worst possible material for the mouth). Use the black rubber if possible, and the pink for gums, for only the best results can be accomplished *artistically* with plain teeth.

But to accomplish all that is possible for a patient, hygenically, artistically and mechanically in full sets, straight out and out continuous gum will fill all the requirements when properly made.

* The article on "Bridge Work" in July ITEMS was by this author. By mistake it was credited to another.

Editorial.

SUPERFLUITY AND INACCURACY.

In composition, clearness and accuracy require conciseness; a prominent element of a pure style is simplicity; and one of the essentials of strength of statement is the employment of words generally understood. Often, obscurity comes from a desire to appear learned; inaccuracy, from a superfluity of words; and the bitterest controversies from the use of words of double or doubtful meaning. Some men, who are simple, clear and concise in conversation, seem to loose themselves in the clouds as soon as they commence a speach or an essay.

We are afresh reminded of all this by an article before us, written by one of our best scholars and practitioners. Hear this opening sentence:

"Securing to members of the human family their organs of mastification in as perfect condition as possible through the period of their earthly pilgrimage, is the highest aim and most earnest desire of the dental surgeon."

Would not the thought be expressed quite as clearly by eighteen words as by thirty-six?—thus: To secure a normal condition of the teeth, is the highest and most earnest desire of the dentist." And then, why go even outside of the dictionary for such a word as "mastification" when mastication is so handy by?

Take the next sentence of seventy words:

"This, to be successfully accomplished in these times of physical degeneracy, where exalted types of civilization and refined culture sway both public and individual minds—where hygenic laws are lost sight of in morbid desires to gratify acquired tastes and sensual caprices; or a pampering to habits of extravagance that arbitrary fashion has created, will often require a degree of wisdom and manipulative skill which comparatively few individuals naturally possess."

A half, a third, and perhaps a quarter, of these words would have better brought the idea of the writer to the comprehension and appreciation of most readers. Then, "both public and individual minds"! If we can conceive of public minds, what are they, if not belonging to individuals? Then, what are "hygenic laws"? Beyond Webster again. And, how much "wisdom and manipulative skill" are "naturally" possessed by any one?

The next whole paragraph is a single sentence. In it we are re-

minded that "many of our specialty are sometimes sorely perplexed with difficult or complicated cases which come to them for treatment." We have heard of individuals or patients coming, but how about "cases" coming, and coming to "our specialty"?

Never mind the rest of the article. Our object is merely to show how much better a simple, plain, concise style is than one on stilts.

ENGLISH COMPOSITION.

There is much loose and slovenly writing. Many of us do not study the art of good composition as we should; if we did, our sentences would be better formed, and our thoughts more clearly and briefly expressed. The English are supposed to be the superiors of American writers. The little acquaintance we have had with their productions does not confirm this view. Let us quote a few passages from *Dental Anatomy* published by the younger Tomes. His very titles—M. A., F. R. S.—show he has had good literary training; and his father's eminent qualifications must have been an additional advantage to him. A little attention to the errors of others will help us correct our own.

"Without further prelude we may pass to a description of the human teeth, this course appearing to me, after some little consideration to afford to the student the most advantageous introduction to the subject, as he must already possess some knowledge of their forms, while to the matters already alluded to in the preceding pages more full reference will be made hereafter." A long, mixed sentence. And is "prelude" the synonym of preface? Would not this be an improvement? Without further preface we may pass to a description of the human teeth. This course will afford the student the most advantageous introduction to our general subject, for probably he already possesses some knowledge of the mere forms of the teeth.

"The teeth are arranged in close contact, with no interspaces between them * * in a parabolic curve or something approaching one * * sometimes the curve approaches to a squarish oblong form."—Better,—The teeth are arranged in contact in an oblong curve * * sometimes approaching a square.

"It may be added, as generally true, that the teeth are somewhat larger on their labial than on their lingual aspect, a result which necessarily follows from their standing without interspaces along a curved line."—The teeth are generally broader on their labial than on their lingual aspect, necessitated by being placed along a curved line without interspaces.

"And as great variations in size and shape as well as in color are found to exist between different individuals, it is only possible" etc. —And as greater variations in size, shape and color are found, it is only possible, etc.

"The tubercles of the molars." The cusps.

"Each tooth in closure of the jaw impinges upon two."—In closing the jaw, each tooth strikes on two.

"The direction of the teeth in the upper jaw is vertically downwards and slightly forwards."—The direction of the upper teeth is slightly forward from a vertical line.

"Marked though the direction between incisors, canines, bicuspids and molars seem to be at first sight, a closer inspection reveals various gradational or transational characters linking them together, though there are gaps in the chain not bridged over by the forms known to us."—[We cannot bridge over a chain.]—Though as casually viewed, the difference between incisors, cuspids, bicuspids and molars seems distinct, a closer inspection reveals various transitional characteristics linking them, though there are gaps in the chain we cannot unite.

"The crown of the upper incisors is squarish [a form cannot be squarish] or more strictly oblong."—The cutting edge of the upper incisors, as seen from the front, is oblong.

"It is variable in the extent of its development."—It varies in development.

"At the neck it is cylindrical, and is also cylindrical in the root."—The neck and the root are cylindrical.

"The canines are, in all respects stouter teeth than the incisors; not only are the crowns thicker and stronger, but the roots are very much longer."—The canines are stronger than the incisors, the crowns being thicker and the roots much longer.

If the external [?] or distal angle of a lateral incisor be sloped off more than usual, while at the same time its cingulum or basal prominence be well marked, it makes no bad imitation of a diminutive canine, and such laterals are often to be met with by any who search for such deviations from normal form."—If the distal angle of a lateral incisor were more acute than usual, and its basal prominence well marked, it would make no bad imitation of a diminutive canine, and such incisors are often met.

"If anyone will take the trouble to make a mental note of the deviation in form which he meets with in teeth, he will find that they almost invariably consist of approaches towards the form of the teeth on either side of them; and will infallibly be led to the conclusion that incisors, canines, and bicuspids are not three patterns of the teeth perfectly distinct, and each *sui generis*, but that they are modifications of one and the same pattern."—Close observation will show that in the deviations in the forms of teeth, there are approaches in each tooth toward the shape of the one on either side of it; so that incisors, cuspids and bicuspids are not three patterns, but modifications of one form.

"Upper molar teeth have crowns of squarish form, the angles being much rounded off."—The upper molars have crowns approaching a square, the angles being rounded.

"The masticating surface [of an upper molar] carries four subequal cusps, two labial or external and two lingual or internal."—On the masticating surface are four nearly equal cusps two outer and two inner."

"In its most perfect forms the enamel is very far the hardest of all tissues met with in the animal body and the same time the poorest in organic matter." The enamel is the hardest tissue in the body, and the poorest in organic matter.

"The greater part of every tooth is made up of dentine, which thus, after the removal of the other tissues, would preserve somewhat its characteristic form. Several varieties of dentine exist in which those peculiarities which differentiate it from bone become less marked, so that a point is sometimes reached at which it is hard to say whether a particular structure should more rightly be regarded as dentine, or as bone."—The body of every tooth is dentine. Its form would be nearly preserved though its enamel were removed. In different animals there are several varieties; some so resemble bone, it is hard to say whether they should be regarded as dentine or as bone.

MAKE THE BEST USE OF THE PRESENT, AND ENJOY IT.

It is a great folly to be ever looking into the future, to the neglect of the present, making everything of the present irksome that the future may be agreeable,—so that what we have is deemed insignificant compared with what we crave. With most of us, much of the present which we really prize is sacrificed—and sometimes we sacrifice ourselves—in our eagerness to grasp the igneous fatuous of the future. By attempting to live in the enjoyments above and beyond us, we rob ourselves of earth's richest blessings—present comfort, contentment and usefulness.

"Take no thought for the morrow, for the morrow shall take thought for the things of itself," is too old fashioned for us. Yet, if we could rid ourselves of anxious thought for the future, what a rest would remain! How we should enjoy ourselves! Specially would it be so if we coupled with this, the remainder of that good, old injunction: "Take no thought, saying, what shall we eat? or, what shall we drlnk? or, wherewithal shall we be clothed?" Would'nt this be nice? it would be living in the freedom, pleasure and innocence of childhood, compared with the strife, anxiety and exhausting labor now weighing us down.

We labor and are heavy laden to satisfy unhealthy, insatiable desires; we dispise the genuine pleasures of our native and proper

sphere to assume the glittering pretentions of what we are not; and we give our most delicious food for husks we cannot eat,—till we are the abject slaves of uncontrolable circumstances, goaded, fretted and exhausted by perverted appetites and depraved passions. We lay on our backs future cares, and drag into the future ponderous weights picked up by the way, to find our yoke galling and our burden heavy.

Our real needs are neither numerous nor burdensome. Our superfluities are what cost us so much and give us so much trouble to adjust to our own and to others satisfaction. For real comfort, we all know, simple food, plain clothing, and rational enjoyments are best for us. And these are easily obtained, for they are comparatively inexpensive. We are equally convinced that the legitimate, useful, necessary work of life is not burdensome. There is hardly more of it than is necessary to give zest and capacity to pleasure. Yet we toil to exhaustion to satisfy false ambitions, and strain every nerve to obtain life's vanities.

"Therefore I say unto you, take no thought for your life what ye shall eat, or what ye shall drink, nor for your bodies, what ye shall put on. Is not the life more than meat, and the body more than raiment? Behold the fowels of the air: for they sow not, neither do they reap, nor gather into barns; yet your heavenly Father feedeth them. Are ye not much better than they? Which of you by taking thought can add one cubit to his stature? And why take ye thought for raiment? Consider the lillies of the field, how they grow, they toil not, neither do they spin; yet I say unto you that even Solomon in all his glory was not arrayed like one of these. Wherefore, if God so clothe the lillies of the field, which to-day is and to-morow is cast into the oven, how shall he not much more clothe you, O ye of little faith? For your heavenly Father knoweth that ye have need of these things."

This is not thoughtlessness we are taught, nor laziness, nor indifference to the future. It is making the best use of the present as the wisest preparation for the future. It is making for ourselves a little heaven, to which all things necessary shall be added, and in which we can dance and sing as we pass along to brighter and still more glorious scenes. Enjoyable labor brings sweet rest; light afflictions, strength; and conflicts, glory.

The secret of happiness, therefore, is in judiciously and thoroughly doing and enjoying the present, as a sure preparation for the duties, responsibilities and associations—yes, and the treasures and pleasures—of the future. It requires no straining nor exhaustion, no worry nor anxiety, no intrigues nor compromises. The normal, bounding passions give supleness, vim, and inspiration to the faculties; the whole mind, healthy and untrammeled, develops clear, wise, useful

thoughts and plans; and an unperverted will, rouses, commands and directs the energies. Duties are changed into privileges, work into enjoyments, and burdens are unknown.

There will be ignorance, weakness, and errors within, difficulties oppositions and obstructions without, and vexations, losses, and crosses everywhere. As children we shall need much discipline we cannot understand, as youths, much culture that will be hard earned, and all of us much restraint, supervision and guidance which must come in God's own way. But for all, with all and in all, if we are true to ourselves, there will be compensation, and out of all will come final good. Thus a proper fulfillment of the present will bring a continual broadening and brightening and final glory of the future.

But what has this to do with business? Much every way; for, if in our business we concern ourselves more in making the present perfect, and content ourselves more with its enjoyments, its work will be better wrought, and its pleasures better appreciated. It will be a double pleasure; for, while we shall enjoy the present, for its own sake, and do our work the better because we enjoy it, its beauiiful rays will reflect on the future, gradually giving us better skill and a grander position, with a business, and everything else, more commanding in results, and finally transforming and adapting our whole being to the enjoyments and capacities of a better and higher sphere beyond. If we would have a heaven in the future, it must grow out of a heaven of the present.

HINTS TO SECRETARIES.

Messrs. Secretaries of Dental Conventions, &c., we are hungry for the meat, while you too often give us the skeleton. Give us the real food your brethren provide you, and keep the dry bones for future home use. While it is important for you to keep a strict record of your organization, list of officers, speeches of laudation, and various matters of local interest, it is mainly important for us to know "What's the news, dental wise?" Give us every important suggestion, improvement and experience, in a clear, concise manner, and we will thank you.

For one, I am disappointed when you tell us that Dr. Blank's report on the properties and preparation of various amalgams was an able and instructive essay, and do not inform us what important facts made it "able and instructive." What do we care that the evening session was occupied by the reading of a paper by Dr. —— upon Rigg's Disease, and its discussion by Drs. A. and B? Rather tell us what Rigg's Disease is, and what was said about it that may benefit us poor benighted ones.

Nearly all the report some Societies make is the list of their offi-

cers, topics of discussion, and a very generalized statement that the meetings were very interesting, &c.—not a word of specific enlightenment upon the theory or practice of dentistry.

Messrs. Secretaries, give us the meat, and lock up the skeletons in the archives of your societies.

T. B. WELCH, *Vineland, N. J.*
In Den. Mis. of June, 1875.

Gold filling, for children's teeth are not generally preferable. Even for the front teeth it is generally bad practice for children under 13 or 14 years of age. It is very difficult to make good gold fillings in such teeth even if they would remain good, but the teeth are too immature for any fillings, to be permanent, and the work is too tedious. Gutta percha, or phosphate of zinc, for the front teeth and alloy for the back teeth are much better. If the teeth are soft as they often are, phosphate is the best for both front and back teeth, though the fillings may have to be renewed more frequently. It should be made prominent in the minds of parents that the treatment and filling which will best preserve the teeth is the best, though the work has to be repeated.

In mounting plain front teeth lay them *on* the gum, instead of *over* it. Perhaps, laying them on the gum is hardly the right expression; for the idea is to grind them almost to an edge in front, so that, while the body of their foundations rests on the gum, and conform to its shape, the front edge will imbed itself into it. At first thought, this will seem a cruel practice; and it certainly is if a proper discretion is not used. A little practice, however, will soon show the amount the patient can bear, without special annoyance. In fact, most—specially ladies—will bear much for a few days, to obtain the admirable result that follows. If you have gone to an extreme, it is easy to grind off a little of the front edge of the tooth; but, often you will fail to leave on enough. The gum will so completely grow over the edges of the teeth that it will be difficult to distinguish them from natural teeth. They will really seem to be growing there.

Unslacked lime is said to cure hiper sensitiveness in the teeth. When we were in dental practice we used it to a very limited extent, but not enough to report intelligently. Dr. Calvo and Dr. Yarini, of Cuba say they have found it quite beneficial.

Just break up a few lumps coarsely, and put in a tightly corked salt mouth bottle. When wanted, pulverize finely one of these pieces, and place upon the surface to be obtunded; cover with wax. It will produce some pain, but this will soon pass away. Its effects does not penetrate very deeply, but it leaves the exposed surface in a nice condition.

Miscellaneous.

THE SPELLING REFORM, AND HOW TO HELP IT.

PART OF PAPER RED AT THE CONVERSAZIONE OF THE TEACHERS ASSOCIATION OF ONTARIO, BY MRS. ELIZA B. BURNZ, OF NEW YORK CITY.

To be convinced of the need of a spelling reform we hav but to consider the length of time which it takes for a child or illiterate adult to learn to read, and the many more years which elaps before he or she is able to spel according to the common standard with accuracy; also the fact that spelling lessons hav to be continued through the whole of school life, and that the majority of foreigners and other adults who learn to read can very seldom attain proficiency in spelling; also, after years of schooling it is only those that habitually use the pen who retain the ability to spel correctly; and that in consequence numbers of people who really hav had sufficient educational advantages to make them pretty good English scholars often find themselvs in doubt as to the spelling of words. Many people who use the pen but seldom feel such uncertainty how to spel words that they dred the task of writing a letter lest they should betray their ignorance to their friends; while those who do write frequently habitually keep a dictionary on or near their writing table. Now what is the cause of this trouble in spelling and learning to spel English. The Italians, Spanish and Germans have no such difficulty. The children of those nations simply learn to read, and at once they know how to spel; even the French language, though more encumbered with silent letters, presents no such difficulty as the English does. Dr, Thirlwell, the eminent historian of Greece, declares "English spelling to be a mass of anomalies, the growth of ignorance and chance, equally repugnant to good taste and common sense." This is a just description of our present orthografy; and since it is without rule or reason to so great an extent, it is no wonder that printers and proof readers are the only persons who are sure of their spelling, and even they would not dare to ply their vocation without a dictionary at hand. You see, every word of the language has to be learned independently of any other; the spelling of one word is no guide to the spelling of another word which varies in but a single sound. When referring to my right or left lung, I many spel l u n g, but if I write t u n g people would call me an ignoramus. And yet Spencer spelt t u n g. Do you consider t o n g u e an improvement on t u n g? John Esten Cooke, a wel known literary gentleman, says of this latter spelling: "I confess I was at first somewhat horrified by the new form, t u n g, and I thought I would convict you of a barbarous innovation. I looked at my Johnson's Dictionary, which I hav an old-fashioned habit of

preferring to Webster, and there I found a choice between our Saxon forefathers and our Dutch ones. The former spelled t u n g and the latter t o n g h e, which seems to hav dictated the present spelling."

Is it real progress that makes us spell s c e n t, the odor of a flower, while Milton spelt it s e n t? Was not the spelling a k e, used by Shakspeare, as good as the a c h e of the present day? In many instances the direction which is being taken by the present spelling reform movement is in the line of a return to the simpler spellings employed two or three hundred years ago. It is true that much of the spelling of those days was more complex than that which is used at present, especially in the employment of double letters. It must also be confest that there has been a spelling reform going on ever since the rise of English literature, and that this reform is stil progressing, but it advances too slowly for the demands of our time. Then, too, the current orthografy has become such a fetish with our educators, such a veritable idol, a juggernaut, crushing out of our children those life forces which should be made use of to build up within them real knowledge, character, manhood and good citizenship, that something must be done at once to arrest this deadly superstition and bring reason and harmony into the orthografic domain.

Out of the scanty time allotted for education in our elementary schools, one year at least is literally wasted in what is worse than useless, simply puzzling the child. If we could get that time for subjects which are now overlooked or imperfectly studied for want of time, the entire community wil gain, not only in saved expense, but in increast and improved education."

But not only do our children waste years of school life in learning to spel, but even learning to read is very much impeded by our absurd orthografy. Filologists tel us that the word 'read' has originally the same meaning as the word 'guess.' That the operation of reading is with a child very largely a guessing operation, a matter of no little doubt and hesitation, every teacher knows. Nor are adults always certain as to the meaning intended by a combination of letters, especially if its represents some word they hav never heard pronounced. Occasionally some gentleman is put up as a candidate for office who has as the sign of his name such a combination as B r o u g h; when the name appears in the papers the whole community is puzzled as to whether the man's name is Brock, or Brow, or Bruff. And how can reading be otherwise than difficult, when, of all the letters in the alfabet, not one invariably represents the same sound. The vowel letters are the greatest sinners in performing this harlequin game of "now you see us and now you don't;" and by their consequent transmutation and false appearances they play such tricks upon the primer's page as make the children weep.

COWARDICE.

Perhaps there is no fault we so generally despise in others, so warmly resent being accused of in ourselves, and yet so frequently and unconsciously fall into, as cowardice. It is the mainspring of so much wrong doing, the cause of so much self reproach and misery, and the preventive of so many noble and valuable deeds that no pains would be too great, and no sacrifice too severe to banish or even to diminish its power in the human heart.

The real cowardice which *is* degrading, and which we should all deeply despise, is that lack of moral courage which leads us to stifle our own convictions and violate our own consciences for fear of the ridicule or contempt of some one who stands by. Usually we shall find that the one whom we thus fear is neither worthy of our respect nor admiration. Perhaps we lack the courage to live within our income for fear of the sneer of a neighbor, whom in our hearts we despise, and financial ruin is the result. Or we dare not uphold a truth which we believe because it is unpopular, or we persist in the practice of something our conscience condemns because it is fashionable, and thus we forfeit our sincerity and our influence for good. The ways in which this moral cowardice is shown are legion, and its effect is always disastrous to the character and life. To do wrong, or what is the same thing, to refrain from doing right, when the time for action arrives, because we are afraid of what other people may say or do or think, is the worst form of slavery. To break such bonds we need a deeper consecration to truth and duty. We may admit all the arguments against such bondage, and yet fail to escape from it; but if we are faithful and loyal to the good and the right, if, in our inmost hearts, we love and honor them above all things, we shall find continually growing within us that moral courage which wins for us our best freedom.—*George W. Childs.*

Protecting Steel and Iron from Rust.—Professor Calvert has recently made the interesting discovery by practical tests, that the carbonate of potash and carbonate of soda (common washing soda) possess the same property of protecting iron and steel from rust, as do those alkalies in a caustic state. Thus it is found that, if an iron blade be immersed in a solution of either of the above carbonates, it exercises so protective an action that that portion of the iron which is exposed to the influence of the damp atmospheric air does not oxidize, even after so extended a period as two years. Similar results, it appears, have also been obtained with sea-water, on adding to the same the carbonates of potash or soda in suitable proportions.

Soda is one of the best remedies for burns or scalds.

OFFICERS AND COMMITTEES OF THE PENNSYLVANIA DENTAL SOCIETY FOR 1884 AND 1885.

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THE ART OF THINKING.

The object of the teacher is to teach to think. The pupil thinks enough, but he thinks loosely, incoherently, indefinitely and vaguely. He expends power enough on his mental work, but it is poorly applied. The teacher points out to him these indefinite or incoherent results, and demands logical statements of him. Here is the positive advantage the teacher is to the pupil.

Let us suppose two pupils are studying the same lesson in geography or grammar or history. One reads to get the facts; he fastens his eye on the page and his mind to the subject before him; he makes the book a study and acquires information from it; his object is to acquire knowledge. He attains this end. The other also studies the book, but while reading he is obtaining lessons in thinking. He does not merely commit to memory, he stops to see if the argument is sound, he analyzes it to see if the conclusion is warranted by the premises.

The one who thinks as he reads is quite different, it will be seen, from him who simply learns as he reads. To read and think, or to think as one reads, is the end to seek. To teach to think is then the art of the teacher. The reader for facts gets facts; he comes to the recitation seat and reels off those facts. His mind, like Edison's phonograph, gives back just what it received. While this power is valuable, it is not the power the world wants.

The teacher will find his pupils come to the recitation to transmit the facts they have gained. He must put them in quite another frame of mind. Instead of recitors they must be made into thinkers. The value of the teacher is measured by his power to teach the art of thinking.—*Teachers' Institute.*

PHONETICS.

[Letters not here, retain their common sounds.]

H ɥ A a Λ ʌ Ǝ ə I i E e ʎ ʎ Ɔ ɔ O o U u ꓤ ɹ R r

arm and *air* *eel* *ill* *ell* *all* *old* *on* *up* *re* *er*

ſ ſ M ɯ A ɐ I ! Q q X x M ʍ C c ꓕ ʇ Ꞁ l Ʞ ʞ Ǝ ɟ G ɓ

to *too* *ale* *ile* *oil* *owl* *use* *chu.* *the* *thin* *she* *vision* *sing.*

We her giv a spesimen ov r fonetik skript. On je upr paj y wil se hwot we propoz for printiŋ eqaktrz. Ov kors, eni ny letrz wil at frst be konfyziŋ. But studi jem a litl. Y wil finali find jem ezi t red, and if y wil rit it, we jink y wil be plezd wij it. Meni ov us hav forgotn hr loŋ we wr lrniŋ t spel wa. And yet, evn nr, sum ov us hav t konsult r dikʃunari, hwil ritiŋ, or spel prli; and in rediŋ, we r puzld and mad t hezitat bi "silent" and misplast letrz. But if y do not kq for jis reform for its benifit t y, kan it not intrest y for je benifit it wil be t yr cildren, and t je jenrafunz t kum? Did y evr atempt t lrn a forin laŋgwej? Wun ov je hrdest jiŋz iz t korektli pronons je wrdz. Bi reprezentiŋ in jis alfabet a fy mor sondz, we inklud je elements ov ol laŋgwejez. Hwot an advantaj! Redr, hwi not be t a litl trubl for je gud ov je wrld? Help it aloŋ yz it hwen y kan, rekomend it, and tak panz t eksplan its advantejez.

PHONETICS FOR PRINTING.

Tumbliȣ ɔvr ɟe ɔld letrz aftr ɟis faɥon must lʃk kwərli, at frst. But nevr mɪnd. Hav pɐɥens. Aftr a litl, hwΛt lʃks lɪk disΛrdr wil bə fxnd a difinit plan tʃ mɐk sum ov ɟe ɔld tɪps dɯ dubl srvis. Ʇis enɐblz us tʃ konstɹukt fɹom ɟem a fɔnetik alfabet ov fΛrti ꞁɹə letrz hwic ɹepɹəzents Λl ɟe sxndz ov xr laȣgwaj. Wə ɟus ʍz in a wrd ɔnli ɟe letrz ɟat eksaktli ɹepɹəzent its sxnd.

Az ɥɔn bɪ Webstr, "r" haz tɯ sxndz, wun iz ɟe ɹuf, tɹil, konsɔnent sxnd bəfɔr a vxl in ɟe sɐm silabl, az in ɹɔg, ɹuf, ɹɔl; ɟe uɟr iz its smɯɟ vxl sxnd ov "er" in Λl uɟr plɐsez, az lrn, rn, r, lɐbr, lɐbrr, bɔr, bɔrr, err. Az "air" iz an intimɐt blendiȣ ov vxl sxndz, ansriȣ tʃ a tɹifꞁoȣ, wə giv it a siȣl sɪn, az in hʌ, fʌ, stʌ, wʌ, ʌ, kʌaktr. Wə plɐs h bəfɔr w in suc wrdz az hwen, hwʌ, whɪl, hwi, bekyz te sxnd ov h iz bəfɔr w.

ʁədr, hwyt dɯ ʍ sɐ tʃ ɟis? Iz it not mɔr əkɔnomikl, konsistent and filɔzofikl ɟan ɟe fɯliɥ, difikult and ilitrɐt lʃkiȣ wɐ xr wrds Λr nx misspelt? If ʍ dɯ tigk sɔ, help it on. Get ʍr nərest printr tʃ giv a sampl in hiz nʍzpɐpr, and prɔmɔt it in evri wɐ ʍ kan. Az wun wa ov briȣiȣ fɔnetiks intʃ ʍs, wə wil send, pɔstpɐd, nɔt pɐpr wiɟ ɟəz tɯ pɐjez ov fɔnetiks, fΛr twənti sents a kwir, Λr ꞁɹə dolrz a rəm. Ʇis wil ləv tɯ pɐjez tʃ ɹɪt on. By ɟis mənz, ʍ kan not ɔnli ɥɔ it tʃ ʍr frendz but Λlsɔ ɥɔ ɟem hx əzili ɟe skript kan be ʍzd tʃ korispond in.

It wil tɐk sum tɪm tʃ mɐk fɔnetiks popʍlr, ov kɔrs. Pɹintrz wil at frst objekt, but ɟe dəmand wil sɯn krəɐt ɟe suplɪ; ɹədrz wil sɯn sə its simplisiti and əkonɔmi; and hwen təcrz sə ɟʌ skΛlrz skipiȣ lɪtli and ɹapidli ɔvr ɟe gɹxnd wʌ wə had tʃ plod aloȣ slɔli, ɟɐ wil bə dəlɪted wiɟ ɟv sukses.

It duz səm tʃ us ɟat ɟis plan pɹəzents a gɹɐt advans tɔrd mɐkiȣ fɔnetiks imədiɐtli pɹaktikl. It duz awɐ wiɟ ɟe prpleksiȣ and ekspensiv lɐbr ov inventiȣ nw tɪps: ɟɐ ɥr Λlɹedi in ɟe pɹinɟr'z kɐsez, ɐkiȣ tʃ bə ʍzd. It Λlsɔ duz awɐ wiɟ ɟe loȣ dəlɐ ɟat wʃd bə nesesɐɹi tʃ indʍs pɹintrz tʃ ꞁɹɔ awɐ ɟʌ ɔld tɪps and bɪ ɟe nʍ, aftr wə had mɐd ɟem. Duz it not Λlsɔ dɯ awɐ wiɟ ɟe plan ov kumiȣ tʃ ɟe pɹaktis ov fɔnetics bɪ pɥrɥal, slo and tədius apɹɔcez? Ov spendiȣ a veɹi loȣ tɪm prswɐdiȣ ɟe masez tʃ tɐk ɟəz difikult steps, meni yərz apɥrt, əc ov hwic wə intend ɟɐ ɥal abandun az sɯn as aksepted, til wə hɔp tʃ bɹiȣ ɟem fɪnali tʃ fɔnetiks?

Kum, nx, dɯ not mərli lʃk upon ɟhis az a kʍɹiΛsiti, and ɟen pas it bɪ. Λl must admit ɟat ɟe pɹinsipl ov fɔnetiks iz a gʃd wun; iz not xr plan tʃ bɹiȣ it intʃ ʍs a gʃd wun, tɯ?

Konsidr it kʌfʃli, fΛr wə must fɐs ɟe nəsesiti ov sum dəvɪs. If ʍ ꞁrɔ ɟis asɪd, hwΛt wil ʍ put in its plɐs? It iz fΛli tʃ ignɔr ɟə hɔl subjekt, and bə wiliȣ tʃ dɹift aloȣ wiɟ xr pɹezent klumzi ΛꞁΛgɹafi indifinitli. Let us əc bə wiliȣ tʃ dɯ hwΛt wə kan, hxevr litl ɟat mɐ bə.

T. B. WELCH, 1413 FILBERT ST., PHILADELPHIA, PA.

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